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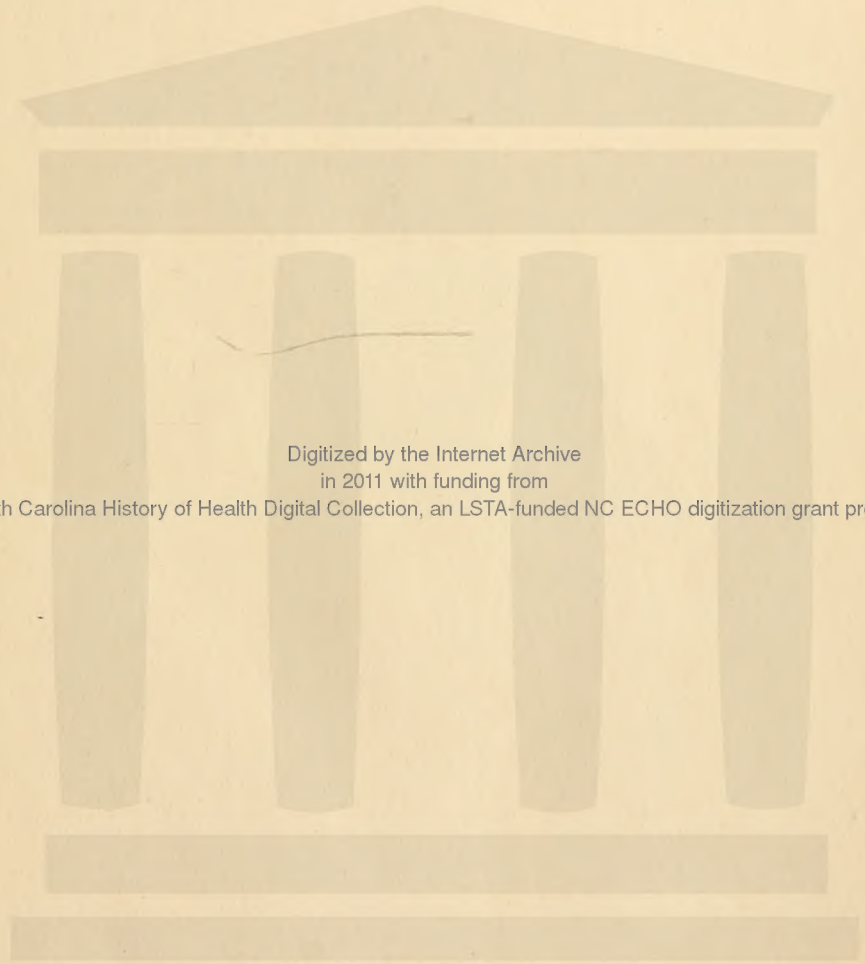
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The NORTH CAROLINA MEDICAL JOURNAL

BEST WISHES FOR A HAPPIER NEW YEAR

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Vol. 4 January, 1943 No. 1

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INCONCLUSIVE symptomatology constantly challenges the physician's resources. If the patient smokes, a check-up on nicotine intake may be in order.* But this is a problem in itself, considering the reluctance of smokers to accept adjustments of tobacco usage.

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Bruckner, H.—Die Biochemie des Tabaks, 1936
The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941

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NORTH CAROLINA MEDICAL JOURNAL

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VOL. 4 JANUARY, 1943 NO. 1

THE BOOKISH THEORIC

JOHN LABRUCE WARD, M. D.
ASHEVILLE

Those of us who have practiced the healing art for the last quarter of a century have observed many fads and fancies which have been hailed with glad acclaim by the great and the near great and then have disappeared like the snow on the desert's dusty face. Many of us recall how mercurochrome given intravenously was to cure pyemia; how "lipo-vaccine" was to replace the old typhoid vaccine; how the chick embryo was to replace the calf in producing smallpox vaccine; how polioencephalitis was to be prevented by virus; how meningitis was to be cured by the intrathecal injection of urotropin; how gonorrhea was to be cured by acriflavine; how the infant with winter diarrhea was to be saved only by mastoidectomy; how one injection of salvarsan was to cure syphilis (and the fee for injecting it was in indirect ratio to the length of treatment); how syntropan was to cure arthritis instead of causing acute yellow atrophy of the liver; how "twilight sleep" resulted in the birth of blue babies who sometimes never saw daylight; how certain obstetricians were Pottering around trying to force all infants to make their entrance into this world—as adults make their exit from it—foot first; and how the Freudians proclaimed to the world that repressed desires were responsible for all undesirable acts. (Some of this blame has since been placed on the dysfunction of the endocrines, but none of it has been placed where it belongs—on lack of parental discipline.)

Recently, an experienced druggist stated that doctors no longer prescribe but that detail men prescribe for them. This is only too true. If you doubt it, examine the files in a store after that ubiquitous thief of time, the detail man, has instructed the physicians what and how to prescribe. The sale of vitamins is now big business, and the physician has done his part in bringing this situation about. Vitamins, when needed, are usually prompt and spectacular in their action. If they were prescribed *only when needed*, millions of dollars with which to purchase milk, eggs and vegetables would be saved yearly. The same is true of the elegant and expensive forms of iron and liver. If a patient has an extremely low hemoglobin, he needs a blood transfusion. If not, one of the older forms of iron will be just as efficacious as that advocated by the detail man—and at half the cost. Minot has demonstrated that liver is almost specific in pernicious anemia; however, this type seldom occurs in children. It is worth recalling that for an infant a hemoglobin of 60 per cent or less may be within normal limits. Iron is frequently prescribed for infants to cure an anemia which never existed except in the brain of the physician.

Most physicians who advocate new drugs or new methods believe that they are making a real contribution to the healing art, but experience teaches that most of these contributions are duds. Some of these fads are harmless but many of them cause more deaths than do the diseases which they are supposed to cure. "Be not the first by whom the new is tried nor yet the last to lay the old aside" is sound advice. It should be recalled when a new prophylactic measure is

4 10 52 6

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Charlotte, May 12, 1942.

offered to replace one which has been proven satisfactory. When chick embryo smallpox virus was heralded as superior to that made from the calf, many were eager to try it despite the fact that the other method had served well since 1800. Will the physicians who experimented with their little patients be frank enough to state that the protection, if any, is very uncertain? I see no good reason for using the multiple puncture and other methods of vaccination instead of the old reliable scratch method. There are worse things than Rosenau's "sanitary dimple".

Sometimes, even though a new method is of proven value, its use is not warranted unless some older and *less dangerous* remedy has been tried and found wanting. For instance, fever therapy is of undoubted value in chorea. However, it sometimes causes the cardiac movements as well as the choreic to cease. Large doses of antipyrine will seldom fail to check chorea within ten days. The patient needs no hospitalization, and I have seen no ill effect from the use of this drug. In several instances I have seen the modern treatment of aphthous stomatitis fail completely, and then witnessed prompt relief when chlorate of potash was administered internally. When the modern coagulants fail to stop an oozing of blood, try Monsel's solution. This is so obsolete that it has been omitted from the recent edition of the U. S. P., but it is still of service to some of the horse and buggy doctors. The most useful drugs may yet be very harmful when used without indication or discrimination. The introduction of the sulfonamide drugs marked an epoch in therapy; yet the efficacy of these drugs does not justify their indiscriminate and unintelligent use. Nowadays, it seems that there are only two classes of patients: those who are benefited by the sulfonamides, and those who need a doctor who can make a diagnosis.

Recently the barbiturates have been widely used in the convulsive states, and they are excellent for this purpose; however, if you wish really quick action, nothing equals the inhalation of chloroform. While employing the newer methods one should remember the fundamentals of rest, fresh air and elimination. Oxygen therapy is indubitably of service in many conditions, but I have seen a young child under an oxygen tent exhausting himself because of fright and have seen this same child quiet down and become less cyanotic when the tent was removed and the windows opened so that he might benefit from God's fresh air.

The matter of studying bedside charts has become a fetish, just as close observation is becoming a lost art. If the baby is taking his food well and the vital organs are functioning properly, why worry about the temperature curve? I have seen many patients die with a normal temperature and some recover after having a temperature of 107 F. Fever therapy has proved its usefulness. At last we are beginning to see the truth of the Hippocratic dictum, "Fever is remedial in purpose and effect." Many physicians, however, still seem to think that it is more important to treat the fever than to treat the patient.

Now, to introduce a discussion of one of the most harmful fads which has come to plague us, permit me to quote that master of wit, that astute interpreter of human traits and sympathizer with the underprivileged, Charles Dickens: "The fact is, that there was considerable difficulty in inducing Oliver to take upon himself the office of respiration—a troublesome practice, but one which custom has rendered necessary to our easy existence; and for some time he lay gasping on a little flock mattress, rather unequally poised between this world and the next; the balance being decidedly in favour of the latter. Now, if, during this brief period, Oliver had been surrounded by careful grandmothers, anxious aunts, experienced nurses, and doctors of profound wisdom, he would most inevitably and indubitably have been killed in no time. There being nobody by, however, but a pauper old woman, who was rendered rather misty by an unwonted allowance of beer; and a parish surgeon who did such matters by contract; Oliver and Nature fought out the point between them. The result was that, after a few struggles, Oliver breathed, sneezed, and proceeded to advertise to the inmates of the workhouse the fact of a new burden having been imposed upon the parish . . . " This is by way of reminding you that babies do best when interfered with the least. Since the time of Adam and Eve, for aught we know to the contrary, babies have done remarkably well without prelacteal feeding. If it were best for the baby to have milk at birth, rest assured that Nature would have supplied it. The initial weight loss is normal, not path-

ological, and therefore it is helpful and not harmful as the meddlesome Matties would have us believe. Babies fed shortly after birth are more apt to have digestive disturbances. Worse still, they do not nurse vigorously when put to the breast, and, because of lack of stimulation, lactation may never be well established. The modern mother of the card table-cocktail strata of society needs neither encouragement nor excuse to escape the duties of motherhood. In fact, she seems to think that her breasts are for the sole purpose of making a sweater intriguing. Isn't the unfortunate infant sufficiently handicapped by having his defenseless head pulled through the birth canal by steel blades? Must he be drenched with milk and orange juice as soon as the cord is cut? Weight loss is common to young mammals. This proves that it is natural, and, therefore, best. Nature may, at this time, need our assistance, but the time is not yet when we can improve on a physiological process. "Perfect I call thy plan."

By the use of laboratory methods we are now able to diagnose diseases which, without this mechanical help, would always have been beyond our grasp. But such help has not been without its penalty. Too often the laboratory is permitted to be our master instead of our servant. We are forgetting to use our special senses. We are losing the art of deduction and logical thinking. We are depending too much upon the blood count, the radiogram, the basal metabolic rate; and too little upon observation, auscultation, percussion and palpation. Rarely can we make a diagnosis upon a blood count alone, and when the count is normal it disproves nothing. When an x-ray of the chest is in conflict with the physical findings, he is well advised who adheres to the latter. When a physician examines an x-ray film of the chest (or reads its interpretation by the roentgenologist) before using auscultation and palpation, he is prone to interpret his findings in terms of what he has seen. His visualization of the picture makes him deaf to the auscultation and percussion notes. At best, when interpreting a radiogram, we are groping about in shadow-land. The picture is accurate but the interpretation may be faulty. X-ray diagnoses of pulmonary abscess and pleural effusion are frequently made but these conditions are seldom present unless they can be detected by auscultation or percussion. A flat note and a change in breath sounds are unmistakable findings, and they have their significance, always. Gladly we pay tribute to Roentgen, but we must never forget Laennec and Austin Flint. It is well to recall that all is not tuberculosis that calcifies.

One should never be so naive as to think that because a blood count is normal a patient can not have this, that or the other disease. On several occasions I have seen patients with pneumonia who had a normal blood count and normal pulse-respiration ratio. Despite all of the information concerning the Wassermann test, some still think that a positive test means syphilis and a negative test, the absence of it. Among the rare diseases giving a positive Wassermann reaction, I have observed rat bite fever and tuberculous meningitis. Concerning the laboratory tests for kidney function: while the nonprotein nitrogen, the concentration test, and the phenolphthalein test may help in prognosis, the fluid output compared to the fluid intake is what should interest us most. Similarly, in cardiology, the electrocardiogram may call forth dire forebodings; yet the only worthwhile test of cardiac function is the amount of work which the heart can perform—even while loudly murmuring at the task—without signs of decompensation. Our dependence is in this rather than in what the wild waves are saying.

Except during the past two decades, when chemotherapy, biochemistry and serology have added so much to the diagnosis and treatment of disease, most of the progress in medicine has been accomplished solely by the use of the special senses and without the use of any of the diagnostic impedimenta which we now depend upon to do our thinking. It was observation and logical deduction by such immortals as Hippocrates, Galen, Celsus, Harvey, Jenner and Sydenham which laid the foundation of modern medicine. It was this which enabled them to differentiate diseases, to relieve pain with opium, gout with Colchicum, rheumatism with wintergreen, malaria with Cinchona, syphilis with mercury and the iodides; to prevent smallpox by vaccination and scurvy by the use of citrus fruits, a century and a half before Funk coined the word, "vitamin". So, before we desert the altars of forgotten gods, it behooves us to make certain that the new

idols which we are eager to worship have not feet of clay.

In conclusion, permit me to misquote Rudyard Kipling thus:

If you can hear of fads, without believing,
And to thine own self be true, without deceiving;
If you can reserve judgment until the thing is proved,
And study conflicting laboratory data without being moved;
If you can think of P wave and B. M. R. as lightly as your B.V.D.'s
Yours is the diagnostic world and everything that's in it,
And—which is more—you'll be worthy of your heritage, my son!

And now, whatever your verdict on this rambling dissertation, we may, with all modesty, submit that it does not smell of buckram, that it is our brain child; and we can say with prideful proprietorship, as Touchstone did of Audrey, "an ill-favored thing, sir—but mine own."

CHEMICAL WARFARE IN CIVILIAN DEFENSE

GEORGE T. HARRELL, M. D.
WINSTON-SALEM

The widespread use of chemical agents in the present war is a possibility which must be faced. No one knows what our enemies have in store for us, and we must be prepared for any eventuality; for the airplane has placed the civilian as much in the front line as is the soldier at the actual fighting front. The threat of the use of gas against civilians will remain as a terror weapon. It is possible that selected civilian targets, such as shipyards, aircraft factories, power plants, telephone exchanges, railroad stations and other key areas, whose failure to operate would paralyze our rapidly moving and highly integrated civilization, may be sprayed with liquid chemical agents from airplanes in an attempt to spread panic and to break down essential services.

Types of Chemical Agents[1]

Chemical warfare should not be considered solely the use of gas. There have been large numbers of casualties from the use of incendiary missiles in Great Britain. These may be in the form of large bombs filled with oil or gasoline, two-pound thermite-magnesium bombs, or the ingenious "calling cards" containing phosphorus, used by the British in an attempt to burn forests and crops.

The chemical agents used to inflict human casualties directly are of the same type as those used in the last war, and are composed of two chief groups: the pulmonary irritants and the vesicants. Phosgene is a member of the former group, affecting primarily the lungs; it is a true gas at ordinary temperatures and is quickly dissipated. It can be identified by the characteristic odor of green corn silk or ensilage. Mustard, the chemical agent which was most widely used in the last war, is primarily a blistering agent. At ordinary temperatures it is a heavy liquid resembling dirty crankcase oil, and it vaporizes slowly to form a heavy gas which hugs the ground and which may persist for days. It can be identified by the characteristic odor of garlic, dried mustard or horseradish. It affects chiefly the skin and eyes, with the formation, after a latent period of some hours, of a superficial dermatitis analagous to poison ivy dermatitis. The lesion formed is a large blister containing clear, harmless fluid, which is surrounded by moderate erythema, and accompanied by severe pruritis. If the lungs are unprotected by a gas mask, they may be affected. Lewisite is primarily a vesicant but contains in its molecule a systemic poison—arsenic—which may cause delayed death after absorption. Lewisite burns are analagous to hydrochloric acid burns; the material continues to eat through the superficial and subcutaneous tissues until it is neutralized. The blister fluid is cloudy and extremely irritating; it contains arsenic, and if spilled on the undamaged skin will cause "daughter" blisters. This agent, invented by an American, can be identified by its characteristic odor of geraniums. The ideal agent would be an odorless compound which would blister and, by hydrolysis, liberate a rapidly acting systemic poison. It is known that before Hitler's rise to power, prominent German chemists who were active in the preparation of chemical agents during the last war did considerable research on the cyanide compounds, and it is quite possible that these will be used before the present conflict is over. Any new agents will, in all probability, follow one of the types outlined above, and the protective measures now employed will be adequate.

From the Department of Preventive Medicine, The Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

Presented before the Eighth District Medical Society, Asheboro, October 7, 1942.

1. Jacobs, M. B.: The War Gases: Their Identification and Decontamination, New York, Interscience Publishers, Inc., 1942.

Pathology

The pathologic processes involved in the action of these chemical agents resemble those seen in many peacetime casualties. Following the inhalation of phosgene (which rapidly hydrolizes to hydrochloric acid), the lung becomes wet, the alveoli are filled with tremendous exudation of blood serum, the capillary walls are damaged, and many capillaries are thrombosed. Obstruction to the flow of blood through the lung and to the passage of oxygen across the membranes into the blood is produced, and results in peripheral venous distention and cyanosis. As the process continues the peripheral circulation fails and the picture is one of peripheral circulatory collapse or shock. The greatest number of deaths occur within twenty-four hours. Late sequelae are bronchiectasis, gangrene, lung abscess and pulmonary fibrosis; tuberculosis, however, occurs no more frequently than in the general population. Parenchymatous degenerative changes in the brain, kidney and heart have been reported, but are not a prominent feature.

In burns due to incendiary or to vesicant agents, the pathology is the same as that in a burn due to any cause. The chief disturbances are due to the tremendous loss of protein and fluid through the weeping lesion, and to the secondary infection which almost invariably follows. Late sequelae of the skin lesions are scars and contractures.

Of all the casualties from chemical agents in the last war, only 2 per cent died; this was far less than the mortality among casualties from rifle or shell fire (24 per cent).

Treatment

A person suspected of having inhaled a pulmonary irritant should not be allowed to take the slightest exercise, and should be classed immediately as a stretcher case. No artificial respiration should be given because of the danger of rupturing alveoli and causing emphysema. Atropine and many other drugs have proven ineffective in reducing the pulmonary edema; aminophylline was not available during the last war, but would be a logical drug to try. If venous distention is marked, venesection may give temporary relief. The blood should be collected sterilely, as it may have to be reinjected when the stage of peripheral circulatory collapse is reached. Oxygen should be administered by whatever method is available.

The vesicant agents are fat-soluble oils at ordinary temperatures, which tend to dissolve in the secretions of the skin. Clothing should be removed and put in a metal container with a tight fitting lid so that the first-aid personnel is not exposed to the vapor. Droplets of the material should be daubed off with a dry cloth or one dampened by a fat-solvent such as lead-free gasoline, alcohol, ether, or kerosene. Then the skin may be decontaminated with any chlorine-containing compound such as bleaching powder, Zonite or Chlorox; in the case of Lewisite 10 per cent hydrogen peroxide is preferable, though the common 1-3 per cent household solutions will be effective. A thorough scrubbing with large quantities of laundry soap or other soap and water has proven, in experimental animals, as effective as any other measure, and should be done whether or not other decontaminating agents are used. Speed is extremely important, especially in the case of Lewisite, and one should use whatever is handy rather than waste time searching for the ideal material.

The eyes should be irrigated with a quart of tap water or normal saline under very low pressure as a first-aid measure, and then protected against light. Butyn or holocain may be used if pain is severe, but no cocaine. If the eye is damaged, the pupil should be dilated with atropine or homatropine.

The treatment of burns should be directed toward the replacement of protein and fluid loss and the prevention and control of infection[2]. Treatment of circulatory collapse should be instituted before local measures are employed. If as much as 10 per cent of the body surface is burned, plasma should be started immediately, even though no signs of shock are present. The quantity used should be controlled by hematocrit readings; as much as 5500 cc. may be required in twenty-four hours for a single patient. Local treatment should be done as aseptically as possible. The area should be cleaned with soap and water, and if there is evidence of exposure to a vesicant agent, should be decontaminated. Debridement should be done in the operating room under sterile technique, and the area should then be sprayed

2. Harkins, H. N.: Treatment of Burns, Springfield, Ill., C. C. Thomas, 1942.

with triple dye (composed of 1 per cent aqueous gentian violet, 1 per cent brilliant green and 0.1 per cent acriflavine), with a mixture of 5 per cent tannic acid and 5 per cent silver nitrate, or with the newer solution of 2.5 per cent sulfadiazine in 5 per cent triethanolamine. These form an eschar which diminishes fluid loss and prevents further contamination from the air. Sulfadiazine, silver nitrate, and the triple dye are bacteriostatic, but infection may spread under the eschar, particularly if devitalized tissue is present. In the present war experience has taught that the commonest errors have been in dressing burns too frequently, and in not observing meticulously the principles of sterile technique in changing dressings.

The experiences during the Spanish civil war and the mass raids on the British civilian population indicate that the most serious problem is injury due to mixtures of high explosives and incendiaries. The number of civilian casualties is small in comparison to property damage, but those who are injured are injured severely, and in spite of all therapy nearly 40 per cent die.

Since the threat or suspicion of gas is likely to cause people to swamp medical facilities, one should be extremely ruthless in weeding out at the first-aid post all those not known definitely to have been injured or exposed to gas. Forty per cent of those injured by falling masonry, crushed by beams, or severely burned in fires will die in spite of the best treatment, whereas only 2 per cent of those injured by gas will die. We must devote our energies to those who need our services most. In the light of the British experience we should not attempt to care for more than 50 severely injured casualties in any single hospital. We have arranged for adequate supplies of plasma in banks scattered throughout an area within two hundred miles of the seacoast. If a raid comes the local supplies of plasma will be exhausted within a few hours, and probably the greater part of that stored within overnight travel of the raided city will be required in the first few days.

It is most important, if our existing setups are to function efficiently, that the general population should be adequately instructed in simple measures it can follow if gas is used. Except for air-raid wardens, gas officers or decontamination squads, civilians do not need to enter gassed areas until nature has rendered them safe by sun, wind, and rain. In all probability individuals must decontaminate themselves at home simply with soap and water. There is little to be done outside a hospital for those who have inhaled gas. Above all, civilians should realize that chemical warfare holds no mysterious power of sudden death that can wipe out entire communities, but that these agents can be safely and effectively combatted by intelligent, trained persons.

TETANUS AND THE ESSENTIALS OF ITS SUCCESSFUL TREATMENT

VERNE S. CAVINESS, M. D., F. A. C. P.

RALEIGH

Tetanus is almost entirely a preventable disease, and remarkable progress has been effected in its control. Unfortunately, however, prophylactic measures too often are not used, and when the disease does develop, it is usually not cured. I believe tetanus to be curable in almost all cases in which the proper treatment is instituted early enough.

Prophylaxis is simple and inexpensive. It appears probable that the essential difficulty in prophylaxis in North Carolina lies in the lack of interest among the public. North Carolina physicians use prophylactic antitetanic serum with exceptional discretion and skill—as is evidenced by the very low mortality rate in this state from tetanus[1].

Tetanus bacilli and spores have their origin in the intestinal tract of horses, mules, sheep and possibly all herbivorous animals. They are found at times in the human feces. For some unknown reason, mice are partially immune and fowls are almost completely immune. Infection is produced by the introduction of the bacilli into wounds, usually puncture wounds, but at times contusions or lacerations; rarely, they enter by cuts. Infections are mixed. It is doubtful if a pure culture of tetanus bacilli would cause much damage. Spores are destroyed by phagocytic action in a clean wound. Very interesting experiments have been performed by introducing pure cultures of tetanus bacilli or detoxified bacilli into stab wounds. Such experiments very rarely yield symptoms of tetanus. This suggests the possibility of a sym-

From the Medical Department of Rex Hospital, Raleigh. Presented before the Rex Hospital Staff, June 8, 1942.

1. North Carolina Public Health Reports, 1914-1941.

biosis in addition to the anaerobic characteristics of the infection.

The infection of tetanus usually remains at the site of the wound, and the two toxins are spread from the focus. The toxins are absorbed by motor nerve end plates and are conveyed along the axis cylinders and nerve lymph channels to the spinal cord. The major portion of toxins are absorbed into the blood stream and carried to motor nerve end plates over the entire body[2]. This accounts for the generalized involvement of the muscular system of the body.

The nerves to the jaw and neck are among the shortest motor nerves in the body, and toxins can reach the central nervous system from the blood stream by these nerves much more quickly than through longer nerves. This accounts for the fact that the initial symptoms of this disease are stiffness and soreness in the muscles of the jaw, neck and upper back.

Symptoms of this disease are due to an extreme degree of hypertonicity of the motor apparatus. This sensitive reflex arc reacts so readily that clonic and tonic spasms may result from any stimulus.

Autopsy findings show tetanus bacilli in the wound, degeneration of ganglion cells in the cord, and some congestion of the gray matter of the pons and medulla.

Historical Note

It is interesting to compare statistics and opinions regarding tetanus before and after the discovery of the cause of the disease in 1884. Dr. Roberts Bartholow[3] stated that "by tetanus is meant a disease characterized by paroxysmal tonic contractions of the voluntary muscles, and due to an exaltation of the reflex function of the spinal cord." He listed as causes: wounds, pricks of the skin, nerve injuries, and intrinsic or extrinsic lesions, and also cold water dressings and pressure of scar formation on nerves. He stated that recovery is to be expected in the chronic forms but that acute forms are rapidly fatal. Present day treatment differs from his treatment only in the use of antitetanic serum: he recommended the removal of foreign bodies, the dissection of new scar tissue in wounds (how similar to our prsent day methods!) and also section of involved nerves. Bromides in very large doses, curare, opiates, ice bags, nourishment and quiet complete the treatment. The same writer, in his MATERIA MEDICA AND THERAPEUTICS[4], questioned the value of strychnine in tetanus, although many observers were lauding its use at the time! He quoted H. C. Wood's report of 15 cases he had collected in which potassium bromide was the chief or the only agent used, and of these only 2 died.

Samuel D. Gross in 1872 collected reports of 415 cases of tetanus, with 233 recoveries and 182 deaths[5]. This is a fatality rate of only 44 per cent.

Our results at present with antitetanic serum are not that good. At that time, with their remedial measures, and without antitetanic serum, fatality rates appear to have been from 40 to 60 per cent. Henry A. Davidson, in the CYCLOPEDIA OF MEDICINE[6], places the current fatality rate for the United States at 80 per cent. Some other writers place the fatality rate as low as 60 per cent.

Tetanus is so widespread in its natural distribution that eradication of the disease does not appear feasible. Prophylaxis is the best method we have for tetanus control. Tetanus does occur after the use of prophylactic doses of antitetanic serum, but if the serum is given within twenty-four hours after an injury, protection is usually complete; if tetanus does develop, it will be mild, and probably localized rather than the usual generalized type.

Mortality and Fatality Rates[7]

The mortality rate from tetanus has decreased in the United States from an average of 3.5 deaths per 100,000 population for the years 1901-1905 to the all time low of 0.5 in 1939. The average for the ten year period 1930-1939 is .84 per 100,000 population[8]. In the Southern states there is a high mortality rate from tetanus. This has been ascribed to the large Negro population and the agricultural conditions. North Carolina, although surrounded by states with high mortality

2. Boyd, William: (a) Textbook of Pathology, ed. 3, Philadelphia, Lea and Febiger, 1938, p. 220.
   (b) Surgical Pathology, ed. 4, Philadelphia, W. B. Saunders Co., 1938, p. 82.
3. Bartholow, Roberts: Practice of Medicine, New York, D. Appleton & Co., 1884, pp. 668-672.
4. Bartholow, Roberts: Materia Medica and Therapeutics, New York, D. Appleton & Co., 1884.
5. Gross, Samuel D.: A System of Surgery, Philadelphia, Henry C. Lea, 1872, Vol. 1, p. 643.
6. Davidson, Henry A.: Tetanus, in The Cyclopedia of Medicine, New York, F. A. Davis & Co., 1936, Vol. 12, pp. 30-34.
7. We have used the term fatality rate to apply to the percentage of deaths in cases of tetanus; mortality rate applies to the number of deaths per 100,000 population.
8. United States Census Bureau Reports, 1909-1939 (latest available figures).

rates, has a rate far below that of any other Southern state and well below the national average. The mortality rate in North Carolina has dropped from 3.82 in 1914, when the national rate was 2.1, to the low of .03 per 100,000 population in 1940. The average for the ten year period 1932-1941 is .29, and for the past three years, it is less than .05 per 100,000 population[1]. The chief reason for this very low mortality rate in North Carolina appears to be the extensive use of antitetanic serum. While the vital statistics records show a lowered mortality rate, there is actually a higher fatality rate[7] in the cases of tetanus. The apparent statistical improvement is due to the lowered incidence of the disease resulting from the prophylactic use of antitetanic serum.

Many cases of tetanus develop in individuals who have not consulted a physician about the wound which gave entrance to the bacilli. The case to be reported here is one in which no medical aid was sought until symptoms were well advanced. On the other hand, many physicians might not have administered prophylactic serum had they been consulted by this patient.

Cases of Tetanus at Rex Hospital

At Rex Hospital, over a period of more than thirteen years, there have been 10 cases of tetanus, with a fatality rate of 20 per cent. The two deaths were typical cases: one followed an abortion in a woman aged 29 years; the other patient mashed his thumb on his truck, had an incubation period of twelve days, and was admitted to Rex Hospital two days after the onset of symptoms with tonic muscular spasms and opisthotonos. In spite of large doses of antitetanic serum he died two days later. Two cases were in boys aged 9 and 10 years. They had localized tetanus and recovered quickly with moderate doses of serum. Two adults, a man and a woman, aged 54 and 56 years, had mild symptoms and recovered in a few days on small doses of serum. Both had stiffness in the jaws, neck and upper back; one received 6,000 units and the other 20,000 units of serum. The other 3 patients, all males and aged 11, 16 and 27 years, gave histories of incubation periods of eleven, twenty-two and seven days respectively; treatment was instituted on the first, third and second days of symptoms. All had typical severe cases and all recovered with large doses of serum. White cell counts on admission ranged from 14,450 to 17,500. All patients ran some fever and received conventional treatment.

Report of Case

The tenth patient was a white woman, aged 47, married, but with no children. On May 16, 1942, one week before admission, she ran a stick into the calf of her left leg while she was in her barn lot. She pulled out a piece of wood and painted the wound with iodine. Four days later, she removed another splinter from the wound and noticed that there was some infection. The next day, she had generalized aches and some stiffness of her neck, but blamed it on neuritis. The next day, her jaw and neck were painful and she could walk only with discomfort; she was generally stiff and held her head with both hands to lessen the pain. She consulted her family physician, who diagnosed the case correctly, applied silver nitrate to the wound, and gave her 20,000 units of antitetanic serum in the gluteal muscle. The following day she began having convulsions and was rigid and semi-comatose. Later in the day —May 23, 1942—she reached Rex Hospital in convulsions and with opisthotonos.

On admission her temperature was 103.6 F., pulse 120, respirations 30, and the white blood cell count 15,600. The wound in the calf of her left leg was probed and a two inch incision made rather deeply in the leg into a cavity the size of an egg. The cavity was filled with necrotic tissue. This was wiped out with gauze and washed well with hydrogen peroxide. A square of gauze was left in the incision and was kept wet with peroxide for ten days. Twenty thousand units of serum was injected into the tissues about the wound. Thirty-five thousand units was given intravenously and 20,000 was given in the gluteal muscle. Spinal puncture was performed and a small amount of bloody spinal fluid removed. The blood was assumed to be due to trauma occasioned by the difficulty of making a spinal puncture in a patient with opisthotonos. We gave her 5,000 units of antitetanic serum intraspinally. The small dose was used because of the small amount of fluid that could be removed and also in order to test for untoward reactions. In the evening another 20,000 units was given intravenously.

No change was evident in her condition the next day. She was still rigid and frequently presented clonic spasms. She was given 20,000 units intraspinally and 20,000

units intramuscularly. Her spinal fluid was clear. The third day, there was a slight improvement in her condition. Convulsions were less frequent and it was possible to remove her dentures. A nasal tube was introduced for feeding; she had been unable to take very much nourishment by mouth and occasionally strangled while attempting to drink. We gave her 20,000 units of serum intraspinally, 20,000 units intramuscularly and 20,000 units intravenously in 1000 cc. of 5 per cent glucose in normal saline. On the fourth hospital day, her general condition showed a little more improvement; there was partial relaxation of her muscles when she was asleep, although she was still quite rigid when awake, and her reflexes were hyperactive. The same amount of serum was given as on the previous day. The fifth day she was less irrational and was more relaxed. Serum was continued as before. On the sixth day her improvement was increasing; the spinal fluid was under slightly increased pressure, was turbid and contained 66 degenerating cells per cubic millimeter. She was given 20,000 units of serum intraspinally and 20,000 units intravenously in glucose. The next day she was more rational, and was given 20,000 units of serum intraspinally and 20,000 units intravenously in glucose. In the afternoon she developed a profuse, cold, clammy sweat, and was given 500 cc. of blood plasma to restore her blood globulins. This relieved her clammy sweats. On the eighth day she showed much mental improvement; she was more rational and not so rigid. She was given 20,000 units of serum intraspinally and 20,000 units intravenously in glucose. Her spinal fluid was under increased pressure and was clear. There were 75 degenerating cells per cubic millimeter. In the evening the nasal tube was removed and was not required again.

Serum was given until the eleventh day. After this, she improved without serum. The rigidity gradually diminished and she remained rational. She was discharged on the twentieth hospital day and was able to walk with help. Her condition on discharge appeared to be approximately normal.

While in the hospital she received sedation in the form of nembutal suppositories, to which chloral hydrate was later added. She was catheterized every twelve hours for the relief of acute retention. Daily enemas were required for fecal impaction. Her temperature remained normal after the eighth hospital day.

This patient received a total of half a million units of serum. This is a larger dose than is usually reported, but the patient recovered in spite of statistical evidence that she should not have been expected to. It did not appear that she could have recovered if any less serum had been used.

The treatment used in this case represents to us conservative and conventional treatment. The patient made a very satisfactory recovery, although the anaerobic abscess was not incised for more than three days after the onset of symptoms and the case was unusually acute and fulminating. We did not use magnesium sulfate, although some men advocate the use of from 2 to 6 cc. of a 25 per cent solution intramuscularly every four hours in an effort to relieve spasm[9]. Methenamine intravenously has been recommended for its possible effect on the choroid plexus[10]. We have not used it.

Some men give much larger initial intraspinal doses of serum. The number of patients who die within twenty-four hours after admission to a hospital[10]—which is usually also within twenty-four hours after the first large instraspinal dose of serum—suggests to us that large initial intraspinal doses are dangerous. In none of the Rex Hospital cases have intraspinal doses larger than 5,000 units been given initially. Later doses are much larger. The Rex Hospital gross fatality rate of 20 per cent in 10 consecutive cases is to be compared with the report of a fatality rate of 19 per cent in 100 consecutive cases where none of the deaths occurring within twenty-four hours after admission were counted as deaths in making up the statistics[10].

Prognosis

The prognosis in tetanus is poor. Fatality rates reported are, with few exceptions, from 60 to 80 per cent.

Patients who develop tetanus within five days of the infection and those who develop convulsions within a few days after the onset of symptoms appear to have more virulent infections and almost always die. Spaeth[11], in reporting a series of 276 cases,

9. Moore, R. M., and Singleton, A. O.: Tetanus at the John Sealy Hospital, Surg. Gynec. and Obst. 69:146-154 (August) 1939.
10. Vener, Hyman I., and Bower, Albert G.: Clinical Tetanus, J.A.M.A. 116:1627-1631 (April 12) 1941.
11. Spaeth, Ralph: Therapy of Tetanus, Arch. Int. Med., 68:1188-1160 (Dec.) 1941.

states that 69 per cent of those patients with fever may be expected to die. We are of the opinion that fever is due to some symbiotic infection or infections and that the absence of this syndrome is, at least partially, responsible for the so called chronic (or mild) form of tetanus.

Long before the development of antitetanic serum, patients who had a long incubation period and a slow onset of symptoms, and who were given ample sedation were expected to recover. The wound was usually given free exposure.

Prophylactic antitetanic serum greatly reduces the incidence of tetanus, as has been shown by the rapid reduction in the incidence of Fourth of July tetanus by the use of serum. It also reduces the virulence of the disease in unprevented cases.

Treatment of tetanus must be begun early. The longer the time interval between the onset of symptoms and the institution of treatment the poorer the prognosis. However, we have been interested in the fact that we have found no residual effects of the disease in even the most severely ill patients who recovered. This is in spite of degeneration of the ganglion cells in the cord and changes in the gray matter of the pons and medulla. The earlier the wound receives treatment, the less the amount of toxin that will be available for damage to the central nervous system. It is doubtful if any patient could recover without treatment of the wound, and the earlier it is done the better the prognosis. It is noteworthy that open treatment of the wound, nerve section and sedation appear to have given better results in tetanus prior to 1884 than we claim now with antitetanic serum.

Age is important in prognosis: children recover readily; persons older than 60 have a much poorer prognosis. General physique is also very important[9,11,12].

There is marked difference of opinion as to the role of sex in prognosis, especially in different countries. This may be due to varied occupations, or it may suggest that sex plays no part.

Serum dosage is important in prognosis. Mild cases, treated early, tend to recover with small doses of serum. Larger doses are required in more severe cases and when treatment is delayed. Probably from 200,000 to 300,000 units is a minimum dose in severe cases. In the case reported here half a million units was used, and we do not believe any less could have been used successfully.

Medical and nursing care are very important. No set rules can be made to apply to all cases. Much of the treatment is symptomatic, and it must be supervised carefully.

12. Cole, Leslie: The Prognosis of Tetanus, Lancet 1:164-168 (Jan. 27) 1940.

Conclusions

The essentials for the successful treatment of tetanus are:

A. Prophylaxis
   1. Administration of prophylactic serum within twenty-four hours of the injury.
   2. Open treatment of wounds that could be points of origin for toxins.

B. Therapeusis
   1. Early treatment of all cases of tetanus.
   2. Prompt incision of the wound and irrigation with peroxide of hydrogen or potassium permanganate.
   3. Adequate sedation: barbiturates appear to be the drugs of choice, but chloral hydrate, avertin, opiates and bromides are of great value. Sedation by inhalation is very often fatal.
   4. Amply large doses of antitetanic serum, injected about the wound and given intravenously, intramuscularly and intraspinally. The first intraspinal dose should not be too large, but should be followed by much larger daily doses following spinal drainage. Serum should be continued as long as there are spasms and until rigidity is subsiding. A sufficient amount, determined for each individual case, must be given.
   5. Adequate amounts of nourishment and liquids, including globulins and saline, given intravenously or by nasal tube.
   6. Better than average medical attention and nursing care.

Serum is a great aid in our therapeutic armamentarium, but it is unquestionable that since serum has been provided other therapeutic measures have been neglected. As a result, our present fatality rates in persons who develop tetanus appear to be far higher than those reported before the use of

serum. Treatment then consisted in rendering the wound open and giving ample sedation. The physician destroyed the source of the infection, administered sedatives and allowed nature to effect a cure. H. C. Wood[4] lost 2 cases out of 15 by this method. At that time fatality rates were estimated at from 40 to 60 per cent; current fatality rates[6, 9, 11] are estimated at from 60 to 80 per cent.

Doubtless there are many incurable cases of tetanus. But the case reported demonstrates the possibility of effecting cures in cases that are incurable from a statistical standpoint. The earlier treatment can be instituted, the better the chances of a cure. With serum it should be possible to achieve lower fatality rates than those that prevailed before the development of antitetanic serum.

Whenever we become as efficient in the treatment of tetanus as we are in the prevention of the disease, tetanus will practically disappear as a cause of death.

Summary

1. A general discussion of tetanus is given.
2. Tetanus fatality and mortality rates are discussed and compared with lower fatality rates that prevailed before the advent of antitetanic serum.
3. Ten cases treated at Rex Hospital with a 20 per cent fatality rate are discussed. One case is reported in detail.
4. The essentials of the treatment of tetanus are discussed.
5. The importance of treating the patient as well as the disease is suggested as a means to lower fatality rates.

The Effects of War on Peacetime Complaints.—Reports from England indicate that most of the common run of complaints for which people in peacetime sought advice from physicians have largely disappeared, as was the case, also, in World War I. There is now for the people of England a great objective to be gained with less time for the personal worries, introspections, and preoccupations which so often lead to grief, despair, and illness. Hundreds of thousands, if not millions, of people have suddenly, through the exigencies of war, found their place in the sun. Participation in the common cause has provided for the time being new interests, new satisfactions, new communal endeavors. Recession of illness under these circumstances suggests a good sense of well being for the people without which a high standard of health is not possible. A crude but poignant reminder of this same effect on a national scale is the barometric rise of the suicide rate with bad times and fall of this rate with return of better days.—Arlie V. Bock: Fatigue, Tr. and Studies Coll. Physicians Philadelphia 10:78 (June) 1942.

THE STIMULATING INFLUENCE OF SODIUM CITRATE ON CELLULAR REPAIR IN THE KIDNEY INJURED BY URANIUM NITRATE

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and
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The work to be reported was done on forty-six dogs. Twenty-three controls received subcutaneously 5 mg. of uranium nitrate per kilogram of weight. Ninety-two per cent of these animals died between the tenth and twelfth days. Another group of twenty-three dogs each received daily for five successive days by intravenous injection 1/3 cc. of a saturated solution of sodium citrate per kilogram of body weight. At the end of the fifth day each animal in this group received 5 mg. of uranium nitrate per kilogram of body weight. Sodium citrate was continued for five additional days. The mortality rate in this group was 8 per cent, as compared with a mortality rate of 92 per cent in the control group.

The animals receiving sodium citrate showed very little evidence of illness. The animals who did not receive sodium citrate were severely ill; they lost weight, refused food, and died in ten to twelve days.

Blood nonprotein nitrogen and carbon dioxide curves in both groups were parallel for the first five days. After the sixth day the curves in the control animals continued to rise until death, while in the experimental animals by the eighth day the curves were moving toward normal.

In both experimental and control animals the stained sections of the kidneys showed similar degrees of injury on the fifth day. The slides from the controls showed on the tenth day severe tubular injury with little attempt at repair, while slides from experimental animals at the end of ten days showed an enormous amount of tubular regeneration. The necrotic cells had been replaced by a flattened type of epithelium described by Dr. W. deB. MacNider in 1915.

We varied the procedure in a small group of animals and were able to prevent death

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from uranium injury by starting the sodium citrate as late as twenty-four hours following the injection of uranium. It is possible that the beneficial effect of sodium citrate following uranium injury may have some clinical significance.

Abstract of Discussion

Dr. W. deB. MacNider (Chapel Hill): I think that this experiment of Dr. Donnelly and Dr. Holman is extremely significant. The striking thing is the rate of repair which takes place in the kidneys following the administration of sodium citrate and the type of epithelial structure which develops. The rate of repair runs parallel with the lack of retention of certain bodies in the blood, with their increase in the urine, and with the increased output of phenolsulfonphthalein in the urine. These animals survived, whereas a very high percentage of the animals which were not given sodium citrate did not survive. They were unable to effect a process of repair in the kidney tissues, and they died as a result of it.

This work is of interest to us, not only in terms of the use of sodium citrate to repair cellular injuries in the kidney (and that type of repair may be a type resistant to further injury), but especially in its broader implication. Here is a very simple chemical substance which operates on epithelial tissue in a state of injury and very greatly facilitates repair of that tissue. This finding has biological importance as well as a more narrow but yet more helpful therapeutic significance.

THE DIAGNOSIS AND TREATMENT OF THYROID DISEASES

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The diagnosis of thyroid diseases is not as a rule very difficult. Most of them may be recognized by objective findings. Subjective symptoms should be given careful consideration, but they may lead us far astray. Nervousness, which is a prominent symptom of toxic thyroid disease, may be due to anything from exophthalmic goiter to family incompatibility. Obesity may be due to hypothyroidism or it may be due to overindulgence at the table.

Types of Goiters

Most goiters may be correctly diagnosed in the office of the average practicing physician. For convenience we shall consider goiters as toxic or simple.

True exophthalmic goiter in its full blown stage may be diagnosed across the street. The patient presents a moderate enlargement of the neck, protruding eye-balls, and great excitability. There is usually a history of considerable loss of weight. Most of these patients have an enormous appetite and consume volumes of food. Often there have been personality changes.

Toxic adenomatous goiters present the same signs and symptoms, except that the patients are usually in less favorable condition physically, being as a rule of more advanced age, and the thyroid glands are usually much larger and have a more nodular appearance. Basal metabolism studies are not of enormous value in the diagnosis of either of these diseases. They are of value in the decision as to the proper method and time of treatment.

Adenomatous non-toxic goiters are the easiest of all to diagnose. They are not, however, always as harmless or as easy to treat as they appear to be. Every surgeon with a large practice has seen an acute thyroid reaction follow some operation upon a remote organ when he has failed to assess correctly the state of activity of an adenomatous goiter. Adenomatous goiters may be easily distinguished by their location and nodular appearance in the absence of toxic symptoms.

Malignancies of the thyroid are usually diagnosed by the pathologist. The physician or surgeon will be able to distinguish only the more advanced growths prior to operation. They have the same characteristics of other malignancies, and a great many of them are toxic.

Colloid goiters are recognized by their size, their smooth consistency and their lack of toxicity.

Adolescent goiters occur usually in teen-aged girls, are soft and uniform in consistency, and are not toxic.

Differential Diagnosis of Thyroid Disease and Neurasthenia

Physicians, surgeons, specialists and quacks all have one great class of patients in common. Patients with neurasthenia confuse us all. They waste the time of some of us and furnish a livelihood for others. Some of them cling to the best doctors and others follow the most weird quacks and cults. All are seeking an escape from reality in one way or another. The unwary doctor may ascribe some of the symptoms of neurasthenia to a fairly large thyroid gland, or the patient

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herself may have already decided upon the diagnosis before she consults the doctor. The patient with neurasthenia usually has a long history, with many episodes and complaints. She usually is able to furnish a glib recital of the professional opinions of at least twelve doctors relative to the nature of her trouble, no two of which are the same. A poor appetite, constipation, belching, sleeplessness, backache, pain around the heart, and weak spells are usual complaints. When the mind is centered upon the thyroid, the patient chokes. The patient is often a chronic failure. A willingness to undergo operation is characteristic of the surgical form of this disease. The operation of "exploratory laparotomy" must have been invented especially for neurasthenics. These poor souls suffer at the hands of all other surgeons as much as they are abused by thyroid surgeons. They often already have three or four abdominal scars when they present themselves for a thyroidectomy. It is merely a matter of what organ they decide to sacrifice as an alibi for their chronic invalidism and failure to weather the usual trials and responsibilities of life.

Neurasthenia is not a thyroid disease. It does not cause an elevation of the basal metabolism. The pulse is not constantly fast. It may speed up with excitement or exertion, but will slow down when the patient is at rest.

Patients with toxic goiter, on the other hand, usually give a history of definite duration. Most of them have been well until their present trouble. The basal metabolism is nearly always elevated. Almost all have a better than average appetite. Gastro-intestinal complaints are unusual unless a concurrent lesion of some other organ also happens to be present. Nervousness, palpitation, excitability, and loss of weight are usually present, at least to some extent. The thyroid gland may or may not be enlarged. Nearly all of these patients have a great unwillingness to undergo surgery, and particularly thyroid surgery. Often the combined efforts of the physician, the family, and the friends are required to persuade the patient to have the necessary operation.

A word of caution is in order. Neurasthenia is probably the most dangerous diagnosis that any doctor can make. It may mask actual pathology. All of us who have practiced for a considerable time have been embarrassed to find the gravest diseases present in patients who are confirmed neurasthenics. I personally could recite a good many cases.

Treatment

All toxic goiters are best treated by radical surgery, following adequate preoperative treatment. Lugol's solution, sedatives, high caloric diet and bed rest will prepare most patients for operation. The time required to reach an optimum condition for operation varies with individual patients. I consider it safe to operate when the pulse rate stays consistently below 100, when the patient is gaining weight, and when the basal metabolism is falling. Reduction in the size of the gland is a good sign. The exact rate of the metabolism is not important. The vital point to be determined prior to operation is whether or not the patient is improving upon treatment.

The technique of thyroidectomy varies with different surgeons. Adequate removal of tissue, careful hemostasis, and preservation of necessary anatomic structures are the important factors. As a rule, subtotal thyroidectomy performed in one stage gives the best results. Occasional patients require a bilateral lobectomy performed in two stages. This is usually necessitated by some complication quite aside from the goiter.

The toxicity of goiters runs in cycles. Even goiters which are absolutely refractory to treatment can be watched until there is a more quiet phase of the cycle, and then operated upon safely. There is no such thing as an emergency operation for goiter. The thyroid patient who is going to die had best be buried goiter and all. Right here I would pay my respects to preliminary pole ligations. They are meddlesome and utterly without value. The surgeon would do better to use up his superfluous energy in less violent forms of exercise.

Malignancies of the thyroid are treated just as are malignancies in other regions. Wide excision followed by extensive radiation appears to give the best results.

Simple adenomatous goiters should be removed surgically while they are quiet. Operation is relatively safe and toxicity develops later in about 20 per cent of such goiters, while 1 or 2 per cent will undergo malignant degeneration sooner or later. They are disfiguring and often are responsible for dangerous pressure upon the trachea. They

should be operated upon without preliminary medication. Iodine will sometimes produce a toxic change in a simple adenomatous goiter.

Operation for colloid goiters is in the nature of cosmetic surgery. At first thought it seems idiotic to reduce the size of a thyroid gland which is already functioning below normal, but actually operation appears to do no harm, provided that it is not too radical.

Adolescent goiters frequently require no treatment and disappear spontaneously. Iodine medication is often helpful and is never harmful in these cases.

The results to be expected following thyroid surgery depend largely upon the accuracy of the diagnosis, the thoroughness of the preliminary medical treatment, the selection of a wise time to operate, and the experience and technical ability of the surgeon. The mortality from such operations in the hands of competent surgeons can be kept in the neighborhood of 1 per cent. My own mortality has been two deaths out of 309 thyroid operations. One patient died of thyroid crisis six hours following a subtotal thyroidectomy for exophthalmic goiter, and the other of a collapsed trachea due to hemorrhage one hour following the removal of a large adenoma. Neither death was necessary. One was an error in judgment and the other in technique. I have injured one recurrent laryngeal nerve. The patient talks fairly well and I believe that her voice will improve. Fortunately, the modern surgeon may obtain a great deal of his experience vicariously. There is such an abundance of reliable literature on thyroid disease that the surgeon who is a careful student may prepare himself so as to avoid most of the complications of thyroid surgery.

Five Cases of Duodenal Diverticulum. By A. G. M. Martin, III, M. S., M. D. and D. deF. Bauer, A. B., M. D., C. M., McGill Medical Journal Volume XI, Number 5, pp. 10-23, October, 1942.

The authors present five original cases with admirable x-ray views of duodenal diverticulum. They point out that this condition is relatively common, often asymptomatic, but frequently confused with gallbladder disease, peptic ulcer, pancreatitis, and carcinoma of the stomach. X-ray examination makes accurate diagnosis possible. but evaluation of the relation of symptoms to lesion may be impossible. Fortunately most diverticula are harmless. The basis of treatment, medical and surgical, corresponds to that of peptic ulcer. From the literature a brief review of history, classification, anatomy, frequency, diagnosis, complications, and treatment of the condition is included.

MEDICAL AND HEALTH EVOLUTION IN DURHAM, NORTH CAROLINA

WILBURT C. DAVISON, M. D.

DURHAM

The medical and health service of a community is not so much an index of its civilization as a response to its local needs. As Dr. William H. Welch expressed it, "The interests of the public decide the matter." For example, Durham prior to the Civil War was a rural village, known as Prattsburg, and did not have the need for or the interest in the cooperative and organized medical and health services which a crowded industrial city requires. Before 1865 Durham had less than 100 inhabitants, but after General Johnston's surrender in 1865, Durham grew and rapidly became industrialized. By 1869, when the village was incorporated, the census had grown to 258. It was 5,485 in 1890, and by 1941 reached 60,000, with an additional 20,000 in the county outside of the city limits. *Pari passu* with this growth, Durham's medical and health problems increased. The town met and solved these problems similarly to other American communities which have undergone this transition from agriculture to industry.

At least nine factors are responsible for the health of a community: (1) physicians, (2) hospitals, (3) health department, (4) nutrition and dietary habits of the people, (5) interest of the population in their own health, (6) climate, (7) housing, (8) taxable wealth, and (9) inherited physique and racial stock of the people.

(1) *Physicians*: The naming of the town in 1854 and the county in 1881 for Dr. Bartlett Durham was propitious. Durham has had an adequate number of well trained physicians ever since. The Durham-Orange County Medical Society was founded with fifteen physicians in 1910, when the inhabitants of the city and county numbered 35,000, giving a ratio of physicians to population of 1:1,000—a very respectable figure. In 1941, Durham County had sixty-four physicians in practice, in addition to forty-eight at Duke Hospital. This means that there is one physician for every seven hundred and sixteen people in the county, which figure is similar to the national average, and nearly

From the Department of Pediatrics of Duke University School of Medicine and Duke Hospital, Durham.

twice as high as that for the remainder of North Carolina, in which the ratio of physicians to population is 1:1,284.

(2) *Hospitals*: The pioneer work for a hospital was started in 1888 by Dr. Albert G. Carr and was carried to fruition by Mr. George W. Watts, who built the Watts Hospital in 1895. This was the sixth general hospital in North Carolina, and the first one in the state to be approved as Class A by the American Medical Association. The location of the hospital was an example of careful planning; bacteriological plates were exposed in different parts of Durham, and the site with the fewest germs was selected. It had 200 beds in 1941. The Lincoln Hospital for Negroes was established in 1901 through the efforts of Dr. Aaron M. Moore and the money of Messrs. Washington, Benjamin N. and James B. Duke, in "grateful appreciation and loving remembrance of the fidelity and faithfulness of the Negro slaves to the mothers and daughters of the Confederacy during the Civil War." It grew to ninety-nine beds by 1941. The McPherson Hospital with thirty beds for eye, ear, nose and throat patients was built in 1926. In 1931 the Salvation Army Home and Hospital was brought to Durham. In 1930, the Duke Hospital was opened; its four hundred and ninety-eight beds brought the 1941 Durham total to eight hundred and twenty-seven, or one for every ninety-six people in the city and county. The national ratio is 1:292. The annual financial support of the Durham hospitals has grown from the original city appropriation of $1,200 to the Watts Hospital in 1895 to $71,609 to all the hospitals in 1941. From 1925 to 1941, the Duke Endowment paid the Watts, Lincoln and Duke Hospitals $1,202,197 toward the care of their charity patients.

(3) *The Health Department* of Durham cannot be discussed separately from that of North Carolina as a whole, for obviously they are interdependent. A survey of the health movement in the state, city and county illustrates its evolution from sanitation through preventive medicine to the stage of the treatment of disease.

Prior to the turn of the past century, except for the ancient aqueducts and sewers of Babylonia, Egypt, Greece, and Rome, and the Hebrew sanitary code and religious sanctions of Moses, public health and preventive medicine were nonexistent. No one knew until Pasteur's, Koch's, Loeffler's and Eberth's studies in the eighties and nineties that tuberculosis, diphtheria, typhoid fever, and other conditions were bacterial diseases. It is true that von Pettenkofer had established a hygienic laboratory in 1879 and had discovered how methods of sanitary reform and purification of soil and water had almost abolished typhoid fever in Munich, and that Health Departments in some European countries, as well as in Massachusetts, New York and a few other states were keeping birth, mortality and disease statistics and were enforcing quarantine laws; but by and large, until the present century, public health and preventive medicine were in as sad a state as was the practice of medicine. Our generation forgets, if they ever knew, that until von Behring discovered diphtheria antitoxin in 1890, and Ehrlich introduced salvarsan in 1910, and other brilliant discoveries followed, the best medical practice did not, and did not pretend to, cure more than four or five diseases. It was nature, and not the doctor that performed the cures. About all that medicine up to 1890 could do was to nurse, comfort and reassure the patients and alleviate in some degree their suffering.

Considering the state of medical ignorance which existed until the twentieth century, it is heartening to find that North Carolina and Durham were among the pioneers in seeking better health and medical conditions for their citizens. In 1877, under the stimulus of Dr. Thomas Fanning Wood of Wilmington, the North Carolina State Board of Health was born—the twelfth in the country. Among its first activities were the publication of educational pamphlets; the recording of vital statistics; attempts to prevent the spread of diphtheria, smallpox, typhoid and yellow fever; the establishment of sanitary privies, disinfection, and drainage; and purification of drinking water.

Dr. Wood died in 1892, and was succeeded by Dr. Richard H. Lewis, who worked untiringly for health progress. In 1895, bacteriologists were added to the board—a truly pioneering step. In 1903, the prevalence of hookworm in North Carolina was demonstrated by Drs. C. W. Stiles, W. S. Rankin and J. L. Nicholson, but it was not until 1911 that the hookworm treatment campaign, financed by the General Education Board, was started. In 1905, the State Laboratory of Hygiene was established; the fol-

lowing year, the North Carolina Association for the Study and Prevention of Tuberculosis was organized; and in 1907 the State Sanatorium for the Treatment of Tuberculosis was founded—all three of these projects being among the first in the country.

The modern era of public health and preventive medicine in North Carolina started in 1909, when the General Assembly provided for a full-time health officer, Dr. Watson S. Rankin, who soon was recognized as the outstanding state health officer in the country. During his sixteen years' tenure until his retirement in 1925 to become Director of the Hospital and Orphan Section of the Duke Endowment, Dr. Rankin made the health work of North Carolina a model for that of other states.

The campaign against syphilis in North Carolina under Dr. Carl V. Reynolds, with the financial aid of the Zachary Smith Reynolds Foundation, is now further advanced than that in any other state. By 1940 there were two hundred and seventy-six public health venereal disease clinics in seventy-nine counties in the state. Furthermore, by laws requiring physical examination of couples before marriage and of all pregnant women, the state acted to reduce the incidence of congenital syphilis, which probably had taken the lives of 26,000 children. There were estimated at that time to be 300,000 cases of syphilis in the state among whites and Negroes. It was equally prevalent in other states, but none has done so much about it.

The financial support to the State Board of Health has increased from the original grant of $100 in 1877 to $1,379,915 in 1941, of which $370,058 was appropriated by the legislature, $162,814 by the Zachary Smith Reynolds Foundation, $229,872 by the U. S. Children's Bureau, $493,706 by the U. S. Public Health Service, and $123,465 from fees received by the Laboratory.

The evolution of the health work in Durham City and County has paralleled that in North Carolina. From 1875, the City had a City Physician at a meager part-time salary, but without authority to prevent disease or to institute sanitary measures except under the sanction of a special ordinance, which was difficult to obtain. For example, one election for the city council hinged on the question of the keeping of hogs within the city limits; fortunately, the anti-hog ticket won. The ordinance requiring vaccination shook Durham politically. The Board of Health, organized in 1909, elected Dr. T. A. Mann Health Officer and drafted a Sanitary Code which compared favorably with any of those of 1941. In fact, it was so drastic that in 1911, one hundred and eighty-one of the Durham citizens petitioned the town council to repeal the charter of the Health Board. An epidemic of smallpox shortly thereafter taught the public the necessity of preventive measures, and the Board of Health became increasingly recognized as one of Durham's greatest assets, and correspondingly valuable to the health of the community.

Dr. Arch Cheatham followed Dr. Mann in 1913, and was succeeded in 1921 by Dr. J. H. Epperson. The Health Department's progress has gone forward at an ever increasing pace. Some conception of its growth can be obtained from a comparison of the expenditures and the size of the staff. In 1913, the appropriation was $6,140 and in 1941 $109,-605. The staff has increased from a Health Officer and a nurse in 1913 to a force of thirty-eight in 1941.

The practical results of the cooperation of the Health Department, physicians and hospitals have been notable. The death rate in the city and county, which prior to 1913 was 20 per thousand, was reduced to 9.3 in 1941. The infant mortality rate has fallen to 64 in 1941.

(4) *The nutrition and dietary* habits of the people of Durham are far from ideal. The per capita consumption of milk, for example, is less than the daily pint recommended as minimum for good nutrition. Studies of the vitamin C content of the serum of many children and adults indicate that more fresh fruit should be eaten. The hemoglobin determinations of the blood of Durham patients reveal that there is a low intake of red meat, eggs, and green vegetables. An effort is being made through the schools to improve these dietary habits, because proper eating must be taught. Many of the patients in Duke Hospital and many youths in the Durham N.Y.A. Resident Center, at which a nutritional study has been made, still refuse to eat the balanced diets served to them. If advertising can develop a taste for bottled drinks, it also will arouse an appetite for proper articles of diet.

(5) *Interest of the population in their own health*: In spite of the adequacy of the physicians, hospitals and health department of

Durham, fifty-six of the one hundred counties in North Carolina in 1941 had a lower infant mortality rate than Durham, and thirty-eight of the forty-eight states in the country had a lower death rate than North Carolina. Of every one thousand babies born in the United States in 1941, forty-seven died during their first year, but in North Carolina fifty-nine died, and in Durham County sixty-four perished. As the Durham physicians, hospitals and health department are adequate, the most likely explanation for this situation is that the parents of Durham are ignorant of the medical resources available or are too careless or uninterested to use them. To quote the old adage, "You can lead a horse to water but you can't make him drink." The medical profession, hospitals and health department are helpless in reducing the number of deaths if the public does not avail itself of the medical resources which Durham offers.

(6) *The climate* of Durham is nearly ideal. The mean average temperature is 59.6 F. with a summer average of 71.3 F., and a winter average of 48.3 F. The annual average rainfall is 47.13 inches.

(7) *Housing*: The living conditions of the Negroes and poor whites in Durham leave much to be desired. Seventy-five per cent of the property in Durham is occupied by tenants, and 10 per cent is definitely substandard.

(8) *The taxable wealth* or assessed valuation of Durham City in 1941 was $90,410,-366, and of the county $45,230,469. The tax rate of the city was $1.55 per hundred, and of the county $0.63.

(9) *Inherited physique and racial stock*: Seventy per cent of the population are native-born with several generations of Anglo-Saxon ancestry, whose title of "Tar Heels" was not earned by a weak people. The other 30 per cent is Negro, whose susceptibility to tuberculosis and certain infant diseases raises the death rate.

Summary

Durham City and County have made great strides in meeting the all important medical and health problem. Although Utopia has not been reached and probably never will be attained anywhere, Durham should be proud of her accomplishments.

A GLANCE AT ANCIENT MEDICINE

ALEXANDER C. MITCHELL
CHAPEL HILL

Medical practice several milleniums B. C. was the antithesis of the specialized profession it is today. Instead of being conducted by a group of individuals employed solely in ministering to the physically disabled, it was confined to the double-dutied priest-physicians. The universal belief that cause and cure of disease were determined by deities resulted naturally in the designation of churchmen as mediators between the gods and man, and temples of worship became dwellings of the sick.

The Russians, Assyrians, Babylonians, and Jews enjoyed their greatest prosperity from 4000-1000 B. C. During this period medical progress forged ahead under the influence of these peoples. Much in their medical thought was not original, however; for their interrelations with Egypt during that period left noticeable imprints of Egyptian ideas upon their medical science.

About 3000 B. C. a servant of Pharaoh, Imhotep by name, distinguished himself through his activities as priest, astronomer, and physician. His fame grew following his death, and the Egyptians deified him as their god of healing. The Greeks thereafter associated Imhotep with their Aesculapius, and the two gods of healing constituted a joint personality—"Imuthes-Asklepias".

Aesculapius, according to one story, was a mythical deity, left as a babe by his father Apollo in the care of Chiron the Centaur. From him the youthful Aesculapius learned the healing virtues of plants. While he was a young man his fame spread, and many temples were erected in his honor. The Temple of Epidaurus, the most noted shrine of Aesculapius, was a place of gathering for crowds of sick and maimed. Many healing wonders were attributed to the gods acting at this temple.

By some writers, however, Aesculapius is represented as having been a real person, living about 1250 B. C., who was deified following his death. Temples built in memory

This paper was delivered as a short historical talk before a weekly chapter meeting of Alpha Kappa Kappa Medical Fraternity at the University of North Carolina. The speaker, a second year medical student, gathered material from the University's medical library and prepared the paper as the first in a series of historical talks to be delivered at such fraternity meetings.

of this physician were widespread, some of the most celebrated being at the Aegean islands of Cos, Cnidus, and Rhodes (not far from the mainland of Asia Minor).

During the fifth century B. C. Grecian civilization and power reached their zenith. The Hellenic peoples had of late victoriously concluded their war with Persia. It was during this period, when Greece excelled in art, statesmanship, and philosophy, that Hippocrates appeared in Greece. He was born in the Aesculapian Temple on the island of Cos, about 460 B. C. His father, Heraclides, belonged to the order Aesclepiadae (a group of priest-physicians ministering to the sick at the temples). Hippocrates, having received his early education in the temple, left after his parents' death and went to Athens. At the time when he was studying in Athens under some of the greatest contemporary philosophers of the Grecian school, medical attainments and practice were limited primarily to the Aesclepiadae in their temples and to a few surgeons connected with the great armies of that period.

Reinforced with a broad background of philosophical training, Hippocrates began his intensive study of medicine. He early separated himself from the stationary life of the Aesclepiadae, into which he had been born, and traveled through such provinces as Thessaly and Macedonia as a general practitioner of medicine. Wherever he went, his fame preceded his arrival. His professional services were solicited by people of all classes. His good reputation was expanded further during the great plague which swept over Athens between the years 430 and 425 B. C. Artaxerxes, the king of Persia, long an enemy of the Hellenic empire, was said to have offered Hippocrates a large sum of money as inducement to become chief medical adviser to him and his army. Hippocrates, probably partaking of the intense nationalistic feeling of the period, refused the offer.

As a successful physician, Hippocrates not only applied his gift of acute observation to the treatment of his patients but also recorded many valuable observations for the use of succeeding medical generations. However, of the bulk of the so-called "Hippocratic writings" only nine have been generally recognized as actually written by him[1]. One quotation from his writings is indicative of his philosophy: "Life is short, opportunity fleeting, judgment difficult, treatment easy, thought hard; but treatment after thought is proper and profitable."[1]

The Athenian historian Thucydides recorded in a remarkably vivid picture the great plague of Athens. His acute observations are indicated in several short passages from his account of the Peloponnesian War:

"As a rule, however, there was no ostensible cause; but people in good health were all of a sudden attacked by violent heats in the head, and redness and inflammation in the eyes, the inward parts, such as the throat or tongue, becoming bloody and emitting an unnatural and fetid breath. These symptoms were followed by sneezing and hoarseness, after which the pain soon reached the chest, and produced a hard cough. When it fixed in the stomach, it upset it; and discharges of bile of every kind named by physicians ensued, accompanied by very great distress. In most cases also an ineffectual retching followed, producing violent spasms, which in some cases ceased soon after, in others much later. Externally the body was not very hot to the touch, nor pale in its appearance, but reddish, livid, and breaking out into small pustules and ulcers. But internally it burned so that the patient could not bear to have on him clothing or linen even of the very lightest description; or indeed to be otherwise than stark naked . .

"The body meanwhile did not waste away so long as the distemper was at its height, but held out to a marvel against its ravages; so that when they succumbed, as in most cases, on the seventh or eighth day to the internal inflammation, they had still some strength in them. But if they passed this stage, and the disease descended further into the bowels, inducing a violent ulceration there accompanied by severe diarrhoea, this brought on a weakness which was generally fatal . . .

"By far the most terrible feature in the malady was the dejection which ensued when any one felt himself sickening, for the despair into which they instantly fell took away their power of resistance, and left them a much easier prey to the disorder . . .

"Yet it was with those who had recovered from the disease that the sick and the

1. Davis, Nathan S.: History of Medicine, Chicago, Cleveland Press, 1908.

dying found most compassion. These knew what it was from experience, and had now no fear for themselves; for the same man was never attacked twice—never at least fatally."[2]

At about this same period (the fifth century B.C.) the Chinese and Japanese peoples, though highly intelligent, confined their medical practice to soothsaying and exorcism. These two peoples represent groups, in many ways progressive, whose thought and speculation were hampered by religious prohibitions which resulted in the evolution of an unscientific medical practice.

The Chinese "Doctrine of Pulse" was an interesting theory then in vogue. It stated that each organ of the body has its own proper pulse. So long as all of these units function properly—their pulses acting in sympathetic harmony—the organism exists in a state of health. Discord results in disease.

Organotherapy was practiced as extensively in China as in Egypt. Parts of organs, bodily secretions and excretions were administered as curative agents to the sick. The art of acupuncture (which consisted of thrusting fine needles into diseased parts of the body) was universally practiced. Some three hundred and eighty-eight spots for acupuncture were recognized[3]. Danger points were learned through experience. It has since that time been found possible to trace the course of arteries by noting the areas that were avoided by needles.

Japanese medicine has followed a course somewhat similar to that in China, although since the political upheaval in 1868 Japan has made rapid progress in scientific medicine.

Up through the periods so far discussed, all peoples have been seeking healing, mental and even physical, not from physician but from priest (who looked to religion for a cure). Gradually the bright light of the old gods faded. The time came when thinkers of the day had to decide whether Aesculapius or Christ was the true healer—the saviour. Great philosophers disputed the question[4]. One, Origen, argued that Christ was the true healer, in view of his many cures and the close proximity of his personality to that of man. He was the one most devoted to the relief of suffering of the human race. The world decided in favor of Jesus. The old gods died. Such a figure as Saint Sebastian replaced Castor and Pollux. A gradual transition occurred, tending to separate churchmen from the immediate medical treatment of the sick. As the new Christ was worshipped, priests devoted themselves more to the mental education and enlightenment of the people, while the administration of drugs and treatment of the physically disabled passed to the hands of the professional physician. This transition, as we know, did not continue steadily in the same direction, for during the Dark Ages it was the learned men of cloister and church who kept alive much of medicine which otherwise would have been lost in the maze of charlatanry and disuse.

Thus, the advent of the Christian era marked a change to a more empirical medical science. During this changing period there was developing the embryo of scientific investigation which was to blossom forth under the influence of later great scientists.

Within a period of one hundred years (seventh to eighth centuries) the Arabian crescent swept through the Eastern Empire, over Egypt, North Africa, and Spain. Unlike the Germanic hordes, this wave of Arabs became deeply appreciative of all that was best in Graeco-Roman civilization, especially the sciences. Cultivation of medicine was in every way enhanced by the Arabians.

The first great Arabian doctor—Ibn Sina, better known as Avicenna—became one of the greatest personages in all medical history. Born in 980 A. D., he developed into a precocious child, having the Koran by memory at the age of 10. He was a prolific writer. His famous "Canon" was a medical bible for a longer period than any other work. It represented the final compilation of Graeco-Arabic medicine. The art of therapeutics developed through his influence along more scientific paths.

Thus, from 4000 B. C. to 1000 A. D. medical treatment advanced from the stage of superstitious appeasement of the gods to a more rational and empirical application of drugs and specific cures. The foundation of recognized symptoms and systematic treatment laid by these early physicians made possible the ensuing development of medical research and practice which have been governed by an ever increasing faithfulness to the "scientific method".

2. Thucydides.: The Complete Writings of Thucydides (translated by Joseph Gavorse), New York, The Modern Library, 1934.
3. Osler, William: The Evolution of Modern Medicine, New Haven, Yale University Press, 1921.
4. Sigerist, Henry E.: The Great Doctors, New York, Norton, 1933.

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JANUARY, 1943

HAPPIER NEW YEAR !

One year ago this country was still smarting from the stinging defeat administered our forces at Pearl Harbor—a defeat so complete and so stunning that our Government dared not let the whole truth be known until a year had passed. The plight of our allies in Europe was anything but cheering; it seemed that the Austrian paranoic paperhanger might make his mad dreams of world domination come true before we could bring into play our potential productive power. German submarines were destroying our oil tankers and other shipping vessels at will, and Americans had begun to realize that it *could* happen here.

The last few weeks, however, have seen a definite change for the better in Allied fortunes. In spite of blunders, inefficiency, red tape, and the selfish greed of a minority of manufacturers and labor leaders, production has really gone into high gear; our raw recruits have become a mighty fighting force; the epic defense of Stalingrad by the heroic Russians first slowed, then halted, and finally pushed back the great Nazi machine. The Soviet army has gradually turned a desperate defense into a mighty offensive.

The junction of the British and American armies in West Africa came when Rommel was fleeing for his life from the British Eighth Army. For the two great armies, after traversing thousands of miles, to meet within the hour at the rendezvous, was, in the words of a brilliant editor, "achieving the impossible". It surpassed any timing ever conceived and executed by Hitler.

To the appalling loss of life and property caused by this senseless war there is the cheering antithesis that science is making markedly accelerated progress. The invention of synthetic rubber should make us independent of imported natural rubber; aviation is making giant strides, and cheap and practicable air transportation for the average citizen is almost certain after the war. In medicine, the quinine shortage has already led to the production of atabrine on a large and economical scale; the use of the sulfonamides has been greatly extended; plasma and the more concentrated albumin are saving more and more lives; and various immunizations will be tested on a vast scale.

While numerous gains have been made along material lines, of even greater importance is the return to spiritual values. Those who heard Rickenbacker's moving account of the rescue of himself and his companions must have been impressed with the simple, childlike faith with which he told of the daily prayer meetings for rescue and for food, and of the dramatic answers to their prayers. More copies of the Bible were sold last year than in any previous year. A commentator who interviewed a number of the men in our armed forces said that at least fifty per cent of them put on their list of things they wanted for Christmas a copy of the Bible.

On every front the Allies have seized and are holding the initiative. Even though we are warned by the experts to expect a long, hard pull before the war is over, the NORTH CAROLINA MEDICAL JOURNAL cannot refrain from wishing for its readers and for the world a happier New Year than has been anticipated since 1939.

* * * *

"LET'S GET IT OVER QUICK!"

Now that the cause of the Allied Nations looks brighter than it has since the beginning of World War II, some citizens have ventured to express the belief that the war may end before much longer, if we keep up our efforts. No sooner is such a hope expressed than its author is sternly squelched by one—

or by a squadron—of the "experts", who forecast from three to ten years more of the contest before the Axis powers are subdued.

The motive of these Sir Oracles may be—and doubtless is—most worthy. They fear that undue optimism may lessen our war efforts. This fear is refuted in a letter recently published as a full page advertisement of the Carrier Corporation, makers of air conditioning and refrigeration equipment. The letter was written by Arthur Hocking, a worker at the plant. It says so pithily what so many are thinking that it is reproduced almost in full:

"Seven weeks ago my only son was killed in the war . . .

"Since Hardy's death I've been doing a lot of thinking. What I'm trying to figure out is why so many of us are taking things for granted and not doing all we can to help win the war.

"Maybe it's because we keep hearing and talking about the war lasting for years. That sort of thinking might keep anyone from hurrying.

"It could be that this long-pull stuff was why we lost almost half a million minutes of production time last month through absences and tardiness.

"Anyway, I'm fed up with all this talk about a 5 or 10 year war. There's no sense to it. We can win this war quick. We've got to. If we don't your boys will be killed like mine was . . . .

"Sure this means sacrifices. It's no fun to work the night shifts. It's not easy to put 10 per cent of your pay into war bonds. None of us go for gas and fuel and food rationing.

"But these are nothing compared to losing someone you love. I know.

"Please, please don't wait for the casualty lists to come rolling in. Throw yourselves into high — now.

"Get going as though both the Huns and the Japs had to be licked in 1943. Maybe they will be if we really try.

"I suggest a new slogan for Carrier. Here it is—'Let's Get It Over Quick!'

"I hope you don't think I'm preaching. I'm not, I'm praying."

It may be pertinent to recall that in July, 1918, all the experts predicted at least three more years of war. The Armistice was signed four months later.

ARE WE DOCTORS OR SUCKERS?

Physicians must be astonished at times by the ever-increasing number of elaborate and costly publications which are sent to them by the pharmaceutical manufacturers. Many of these pamphlets are examples of the most expensive lithography and printing. Much of this "literature" is the result of the discovery that "patent" medicines can be sold through the pharmacist, but there exists a more profound reason than this, and one that promises to affect the whole course of medical research.

A brochure recently received from a well known pharmaceutical house will illustrate the point. It is an elaborately illustrated description of their beautiful new research laboratory, so well equipped with bright and shiny apparatus that it looks like the fantastic dream of a poor university research worker. This laboratory is only the last of a long list of such research institutes which the larger pharmaceutical houses have established. Such developments indicate that medical research, formerly the exclusive property of the universities, is rapidly passing into the hands of the commercial manufacturers, who are attracting to their laboratories many research workers from the schools.

Is this a fortunate or unfortunate development for the science of medicine? Obviously it can be both. On the one hand these wealthy laboratories can attack a problem with every facility that time and money can provide, and by sheer weight of material and numbers arrive more rapidly at a solution. The production of sulfadiazine by Robling, of the Lederle Laboratories, is an apt case in point.

On the other hand, it is far too much to expect that these commercial manufacturers will always be guided by altruistic motives; hovering in the background are stock-holders with eyes exclusively on the dividends. The pressure of competition will surely force on the medical profession remedies of highly doubtful value, many of which will be useless modifications of drugs already in the pharmacopeia. The intelligence of the physician will be challenged constantly. Will the representatives of pharmaceutical houses in the future be able to say, "Hello, Doctor," when they really mean, "Hello, Sucker"?

"DON'T STICK YOUR NECK OUT"

In the *Journal of the Association of American Medical Colleges* for November, 1942, Dr. Frank L. Apperly, Professor of Pathology at the Medical College of Virginia, pays his respects to the oft-quoted admonition, "Don't stick your neck out." He begins an editorial by saying that this expression, "of all the damnable weapons ever invented by man to tyrannize over his fellows, . . . is surely the most damnable. It kills initiative and makes cowards of us all."

Dr. Apperly speaks specifically of the discouraging effect upon the teacher who finds "his efforts reduced to naught by one sneering soul holding a class in thrall by the lash of his whip, 'Don't stick your neck out.'" The "sneering soul", it is assumed, is the bullying sort of student who discourages his fellows from venturing to express opinions or to ask for information, lest they be made ridiculous. Dr. Apperly's criticism may well be broadened to include graduate physicians, from fledgling interns to veteran practitioners, who are afraid to make definite diagnoses for the same reason, and who will "hedge" and construct cunning loopholes of escape when asked for positive statements of opinion.

An amusing example of such shrinking from a positive commitment was related by the late J. Chalmers da Costa, who overheard a surgical chief make this answer to a father's inquiry about the future of his sick son: "If your son gets well he will get about again. If he does not, he will not. If the balance of events shall remain equal, then he will remain in a state of status quo." Da Costa's comment was, "I take it there has been no opinion equal to this since the immortal opinion of Jack Bunsby of the Cautious Clara."

Another equally cautious opinion was expressed by a bewhiskered attending physician of a Brooklyn hospital, whose appointment was a tribute to seniority rather than to ability. It was a tradition in the hospital that this man would never offer a diagnosis until one of the house staff had given him the clue. On one occasion a group of the interns set a trap for him. When he came in to make rounds, he was greeted with the statement that they had had an argument as to the interpretation of a heart murmur in a new patient, and wanted him to settle it for them. Gravely he adjusted his stethoscope, listened awhile, then raised his head and said majestically, "The blood is passing through the heart."

As a matter of fact, the most astute medical veteran may make stupid mistakes, and the rawest intern or medical student may make brilliant diagnoses. Dr. Apperly would doubtless emphasize, however, that it is better to make an occasional mistake than to be afraid to venture an opinion, and that the person who does make an honest mistake should not be razzed by his fellows. There should be a spirit of good-natured give and take about every medical school, hospital, and professional group that makes for real progress by encouraging the most timid to respect his own opinion, by deflating the overbearing, bullying type, and by allowing all in the group to profit not only from their individual mistakes but from the mistakes of their colleagues as well. Instead of "Don't stick your neck out," let us say, "Don't be afraid to stick your neck out."

* * * *

THE VIRGINIA MEDICAL MONTHLY CHANGES EDITORS

After ten years as editor of the *Virginia Medical Monthly*, Dr. Wyndham Blanton retired from that position after the publication of the November number. This issue contained his swan song, "Haec Olim Meminisse Iuvabit", which is one of the best offerings in medical literature of recent times. Dr. Blanton has rendered a splendid service to medical journalism. Not only has the *Virginia Medical Monthly* served well the profession of that state; it has set a high standard for other state journals to aim at. As he vacates the editorial chair, the best wishes of the NORTH CAROLINA MEDICAL JOURNAL go with him.

Dr. Blanton is succeeded by Dr. M. Pierce Rucker, also of Richmond. Dr. Rucker himself knows how to write, and under his guidance we may expect the *Monthly* to maintain its high position among state journals. The first issue (December) under his editorship makes it evident that changing pilots will not affect the course of the vessel.

The name of Miss Agnes Edwards still appears on the masthead as business manager. Those who know her are certain that so long as she is on the job the editorial hands will be ably upheld.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

M. J. G., a 58 year old. single practical nurse entered this hospital complaining of swelling of the abdomen and of the lower extremities. She was very much debilitated and at times confused, and her history was not accurate as far as details are concerned. She had apparently been well until about six or eight months before admission, when she entered a hospital in another city because of shortness of breath and orthopnea. She remained in that hospital for a period of five weeks, and while there she first noted swelling of the abdomen, which had increased up until the time she entered this hospital. About a week after the onset of the ascites she first noted edema of the lower extremities which was also progressive and persistent. About the time of the onset of the ascites she noticed several large, non-tender masses in her abdomen, and she believed that these had grown slightly in size since that time. She had lost twenty-five pounds in weight, and for six weeks prior to admission she had had epigastric fullness and a burning sensation immediately after eating. This discomfort was apparently not relieved by food and had none of the other characteristics of peptic ulcer pain. For six weeks she had had occasional bouts of nausea and vomiting with some slight difficulty in swallowing, but there had been no hematemesis or blood in her stools. There had been no fever, chills or jaundice. She had grown progressively weaker and more emaciated. During the two weeks before admission she developed tenderness in the left flank, but there had been no urinary symptoms and no hematuria.

Past History: Some five to eight years before admission her right eye had been removed because of the development of a "hard eye". No details could be obtained from the patient or from her physician. Her family history was negative except for the fact that her father and two brothers died of tuberculosis.

Physical Examination: The patient was an extremely emaciated and debilitated woman who was at times confused and quite uncooperative. She appeared to be acutely and chronically ill. Her skin was very dry, and marked weight loss was evident. There were numerous small angiomas on the skin over the chest, abdomen, and face. There were several areas of senile hyperkeratosis, but no pigmented moles were seen. The right eye was entirely normal. There were occasional crepitant rales at both lung bases; otherwise the lung fields were clear. The lung bases were higher than usual and moved but slightly on inspiration. The heart was not enlarged and there were no murmurs. The blood pressure was 110 systolic, 50 diastolic. The abdomen was markedly distended and there was shifting dullness in the flanks and a palpable fluid wave. There was a huge mass which occupied almost the upper two-thirds of the abdomen. The mass was very hard, grossly nodular, and slightly tender. The mass could not be distinguished separately from the liver, and although it extended completely across the abdomen into the left flank it was thought to be entirely liver. The mass was more tender in the left upper quadrant. The spleen could not be felt. Pelvic examination revealed no abnormalities. There were large external hemorrhoids. There was very marked soft pitting edema of both legs and thighs, and of the abdominal and thoracic walls, with superficial weeping ulceration over both tibias.

A urinalysis showed the specific gravity to be 1.025. There was no albumin, but there was a 2 plus reaction for sugar on one occasion. The urinary sediment persistently showed 10 to 15 white blood cells, but no red blood cells or casts. The urine was negative for bile. A urine culture grew Bacillus coli and Streptococcus faecalis. The urine was dark brown in color, but tests for melanin and alkaptone were negative. Examination of the blood showed 3,740,000 red blood cells, with a hemoglobin of 11.5 Gm., and 14,600 white blood cells with 90 per cent polymorphonuclears, 2.5 per cent large lymphocytes, 5 per cent small lymphocytes, 0.5 per cent monocytes, and 2 per cent unclassified cells. The sedimentation rate was 34 mm. per hour. The nonprotein nitrogen was 38 mg. per 100 cc., the blood sugar 71 mg. per 100 cc., the total serum protein 4.2 Gm. per 100 cc. The icteric index was 15.5. The stools were persistently guaiac positive. The bromsulfalein test showed 40-50 per cent retention at the end of five minutes, 10-20 per cent retention

at fifteen minutes, and less than 10 per cent retention at thirty minutes. The glucose tolerance test was as follows: fasting, 88 mg. per 100 cc.; one-half hour, 121 mg. per 100 cc.; one hour, 90 mg. per 100 cc.; two hours, 80 mg. per 100 cc.; three hours, 64 mg. per 100 cc. Venous pressure in the arms was 110 mm. of saline, in the femoral vein 235 mm. of saline. An x-ray of the chest showed diminished expansion, bilaterally, due to fluid pressure from below the diaphragms. The heart seemed to be slightly enlarged to the left, possibly because of displacement from below. No active pulmonary disease was present. The patient was too sick for further x-ray studies.

Shortly after admission, a paracentesis was done and 5 liters of straw colored fluid were removed. The fluid had a specific gravity of 1.010, with 930 white blood cells and 330 red blood cells per cubic millimeter. Palpation of the abdomen after paracentesis revealed no additional information as to the character of the mass. Her course was steadily downhill, and she remained drowsy and uncooperative. On the fifth hospital day she passed some bloody mucus in her stool. The abdominal fluid recurred rapidly after the paracentesis and ascitic fluid drained almost continuously from the wound. Her drowsiness increased and the temperature terminally rose to 38 C. She became comatose on the eleventh day and died shortly thereafter.

Discussion

DR. TINSLEY R. HARRISON: If we assume —and I think such an assumption is justified—that the abdominal mass represents an enlarged liver, then the problem of differential diagnosis becomes a question of considering various causes of hepatomegaly. These may be divided into six general groups:

(1) *Malpositions and malformations.* In this group we may put ptosis of the liver, congenital cysts and congenital hemangioma. The firmness of the mass would exclude such conditions.

(2) *Circulatory disturbances,* including chronic passive congestion, whether due to heart failure, to phlebitis of the hepatic veins (Chiari's disease) or to Banti's disease. The congested liver is smooth, while the liver in this patient was nodular.

(3) *Disorders characterized by infiltration or degeneration.* Here we have to consider hemochromatosis, the fatty liver, amyloidosis, and depositions of blood pigment such as occur in pernicious anemia and malaria. So far as I know, none of these conditions produce a grossly nodular, extremely hard liver. Except for the presence of the nodules the condition is not unlike certain instances of amyloidosis, for chronic sepsis is not always a prerequisite for the development of lardaceous disease of the liver. However, amyloidosis of the liver is usually associated with splenic and renal amyloidosis and one commonly observes albuminuria and uremia without hypertension. The absence of albuminuria, as well as the nodular character of the liver, would make amyloidosis extremely unlikely.

(4) *Cirrhosis.* If the patient had either biliary or Hanot's cirrhosis, one would expect to find jaundice, and the large liver would be smooth. In the early or fatty stage the liver of Laennec's cirrhosis is enlarged but not nodular. Later, when it becomes nodular, the liver is small. The only form of cirrhosis which is likely to produce both enlargement and marked nodularity is syphilitic cirrhosis. However, we have no evidence of syphilis in the patient, and, furthermore, I have never seen a liver as large as this in a patient with syphilitic cirrhosis.

(5) *Infections.* Numerous bacterial, parasitic and fungus diseases may cause hepatic enlargement. The absence of fever would make any of these infections unlikely except some of the very chronic ones such as echinococcus disease. In this condition the liver may have an irregular surface but the nodules are not as hard as those displayed by this patient.

(6) *Neoplastic disease.* In the absence of evidence of disease of the blood, lymph nodes and other tissues, leukemia, lymphoma and sarcomas of the ordinary type can be excluded as very unlikely. Primary carcinoma of the liver is rare, but in this patient the absence of any demonstrable primary focus of carcinoma elsewhere would favor such a diagnosis. However, this disease usually occurs in younger people and ordinarily runs a very rapid course, the total duration from the onset of symptoms to death being a very few months. One has to give serious consideration to metastatic carcinoma from a primary focus in the gastrointestinal tract. The presence of a persistently positive test for occult blood in the stools favors such a diagnosis. The fact that no primary focus

was demonstrated means very little because the patient was so ill when admitted to the hospital that radiologic examination of the gastrointestinal tract could not be done. Certainly, if we take 100 patients, aged 58, with large nodular livers and positive occult blood in the stools, metastatic carcinoma of the liver would be much the most common condition.

There is in this patient one other condition which needs to be considered. I refer to melanotic sarcoma. Her eye was enucleated five to eight years ago, but in some patients the secondary disease of the liver may occur as long as twenty years or more after the enucleation of the primary focus in the eye. The average length of time between the appearance of the disease in the eye and death from liver metastasis is about three years, but there are many instances with a much longer interval. She had no melanin in the urine but melanuria is not a constant finding in patients with melanotic sarcoma.

The problem then would seem to resolve itself into a differential diagnosis between a primary, undiscovered carcinoma somewhere in the body, with secondary involvement of the liver, and melanosarcoma. The chief point in favor of the first disease is its greater frequency. However, in favor of melanosarcoma are the following considerations: (a) the liver was huge in size, and although tremendous enlargement sometimes occurs in metastatic carcinoma, enlargement of this degree is quite exceptional in this condition, but is the rule in patients with melanotic sarcoma. (b) The patient had no fever, and although a febrile course is not constant in secondary hepatic carcinosis, it is found in the majority of cases, while a good many of the people with melanosarcoma run an afebrile course. (c) There was no jaundice, and this complication is likewise the rule in hepatic carcinosis but is frequently absent in melanosarcoma of the liver. In view of these considerations, and especially of the fact that the patient presents the classical combination of a glass eye and a large nodular liver, I would think that the most likely diagnosis is melanosarcoma, secondary to a primary focus in the eye, which was removed a number of years ago. Of course, we do not know from the record that the patient's eye was removed because of such a condition, and she may have had glaucoma. However, if we assume that she did have a primary melanosarcoma of the eye, the whole picture fits in nicely together, and I believe this is the most likely diagnosis.

Dr. Harrison's Diagnosis

Melanosarcoma of the liver, secondary to a primary focus in the eye

Pathologic Report

DR. W. C. THOMAS: The body was cachectic and presented a yellowish-gray hue. When the peritoneal cavity was opened 800 cc. of pinkish fluid and a greatly enlarged, black, nodular liver were found. The liver weighed 6075 Gm., and on section the normal tissue was almost entirely replaced by tumor nodules, some of which were melanotic and others amelanotic. The radicals of the portal vein showed dilatation and the visceral organs drained by the portal system were congested. Some of the retroperitoneal lymph nodes were slightly enlarged and showed black pigment. The right kidney presented a whitish nodule measuring 1.5 cm. in diameter in the medullary portion. The brain and optic nerve were without evident lesion. On exposure of the right retro-orbital tissue through the supra-orbital process of the frontal bone a mass of black tissue measuring 1.5 cm. in diameter was seen. The bone marrow in the vertebral column was replaced by firm black tissue. Sections from the retro-orbital mass revealed a spindle cell sarcoma containing much blackish pigment. Evidence of metastasis was noted in the liver, kidney, thyroid gland, and bone marrow. Deposition of melanin pigment was found in the kidney tubule and other tissues of the body. The terminal event was congestive heart failure with superimposed early bronchopneumonia.

Anatomical Diagnosis

1. Melanosarcoma of the right retro-orbital space with metastasis to the liver, right kidney, vertebral bone marrow, thyroid gland and retroperitoneal lymph nodes.
2. Dilatation of the heart.
3. Pulmonary congestion.
4. Terminal bronchopneumonia, bilateral.
5. Right ocular prosthesis.

CLINICO-PATHOLOGICAL CONFERENCE

City Memorial Hospital

WINSTON-SALEM

Mr. P. B., a 23 year old white male, was admitted to the hospital September 15, 1942, complaining of nausea, vomiting, hiccoughs and marked jaundice of three weeks' duration and of progressive severity. The patient had eaten some sausage three weeks prior to his admission, and soon afterwards became nauseated and vomited. Jaundice followed. He was confined to bed. Vomiting occurred after the intake of food, and hiccoughs were present practically all the time. Stools were noted to be pasty-white for several days following the onset, but later no fecal matter was passed. The patient ate very little; he had lost some weight but did not know how much. Four days before admission his abdomen became distended, and this distention increased until his breathing became difficult. He had "gas on the stomach", relieved by belching. No medical advice was sought until the day of admission.

The patient stated that he had had indigestion—that is, belching and discomfort in the epigastrium after meals—for many years. In 1938 he was in an automobile accident and suffered a fractured pelvis and ruptured urethra. He was in the hospital for two and one-half months. There was no history of other accidents, operations or severe injuries.

Physical examination revealed an undernourished young white male lying in bed, hiccoughing and in apparent pain. Marked generalized jaundice was present. The eyes appeared sunken. The temperature was 100.2 F., the pulse 100, the respirations 24 and the blood pressure 125 systolic and 60 diastolic. The head and neck were negative except for jaundice. The lungs presented no abnormal findings. The heart was regular in rate and rhythm, with no murmurs or thrills. The liver was very firm and smooth, and was palpable on the right side down to the umbilicus. It was tender to pressure. In the epigastrium a firm, sharply outlined border was felt 3.5 to 4 cm. below the xiphoid; this also was thought to be liver. The spleen could not be palpated. There was a large sore over the sacrum—a result of his confinement to bed in 1938 after the automobile accident. There was pitting edema of both lower extremities.

On admission the icteric index was 120; the van den Bergh reaction was immediate direct; the bilirubin was 13.3 mg. per 100 cc.; cholesterol, 192 mg. per 100 cc.; nonprotein nitrogen, 37 mg. per 100 cc.; serum proteins, total 4.28 per cent, albumin 1.43 per cent, globulin 2.85 per cent, albumin-globulin ratio 1:2; the prothrombin time was 76 per cent of normal. The urine was cloudy, amber, and acid with no sugar, a trace of albumin, a 4 plus reaction for bile, and 3-7 white blood cells per high power field. There was not enough urine for a specific gravity test. The urobilinogen was positive in a 1-30 dilution, negative in a 1-50 dilution. The urobilinogen repeated two days later gave exactly the same results. The Kline test was negative. The blood count showed 4,020,000 red blood cells, hemoglobin 12 Gm., white blood cells 29,950 with 20 per cent stabs, 2 per cent juveniles, 60 per cent segmented cells, 7 per cent lymphocytes, 10 per cent eosinophils and 1 per cent basophils. The stool examination was negative for ova and parasites. A plain film of the abdomen failed to show any diagnostic change.

The patient complained of abdominal pain and difficulty in breathing. He hiccoughed a good deal. Wangensteen drainage was started the day of admission, and a rectal tube was inserted. The hiccoughs continued, and the following day he was nauseated and vomited. This same day the nurse's notes revealed that he had an episode of very intense pain associated with passage of urine; no other such episodes were recorded. On September 17 abdominal paracentesis was performed and 3,500 cc. of bile-stained fluid was removed. There was considerable relief after the paracentesis, but the symptoms recurred, with nausea, vomiting, abdominal pain and hiccoughs. The patient was given morphine and other narcotics, and sedatives. Daily infusions of plasma and frequent infusions of glucose were given. On September 22 a laparotomy was performed under local anesthesia; a biopsy of the liver was taken and the abdomen was closed. On September 23 he became irrational, and a dark brown fluid came from his mouth. His pulse became weaker and he finally expired. The temperature varied between 98 F. and 100.4 F. until September 21. After that it fell and did not

rise above 98 F. The pulse varied with the temperature from 80 to 120.

Examination of the fluid removed by paracentesis on September 17 showed 132 cells per cubic millimeter with 73 per cent lymphocytes, 10 per cent polymorphonuclears, 17 per cent endothelial cells. Smears revealed no organisms, and a culture was negative. The blood culture on September 21 was negative. The blood sugar on September 22 was 31.7 mg. per 100 cc. On September 21 the white blood cell count was 42,500 with 38 per cent stabs, 54 per cent segmented cells, 1 per cent monocytes and 7 per cent lymphocytes. The polymorphonuclears showed toxic granulations. No eosinophils were found. On September 22 the white cell count was 41,400 with 76 per cent stabs, 1 per cent juveniles, 20 per cent segmented cells, and 3 per cent lymphocytes. An attempt to give a barium meal on September 21 was unsuccessful, as the patient could not cooperate.

Discussion

DR. W. M. JOHNSON: We have here a 23 year old white male with progressive jaundice, probably obstructive in type. The liver was large, smooth, firm and tender. There was obstruction to the portal circulation, with ascites and edema of the lower extremities. He had only slight fever. There was a marked leukocytosis with a relative increase in the number of polymorphonuclears, and there was also a marked increase in the number of eosinophils on two different counts. The Kline test was negative. The patient gave a history of long standing indigestion and "gas on his stomach". He was emaciated. He suffered from persistent hiccoughs which may be clinically significant.

The first thing to be considered is that his accident, four years previously, might have played a part. A ruptured urethra is a very serious injury; he may have had a residual infection in the pelvis which caused a suppurative pyelophlebitis. Appendicitis with abscess formation could also have given rise to a suppurative pyelophlebitis. The patient did have a high leukocyte count and an enlarged, tender liver, but one would expect more fever and chills with pyelophlebitis. The same is true of suppurative cholangitis.

An abdominal type of Hodgkin's disease should be considered, as this may occur without any superficial lymph node enlargement. Although ascites is common in abdominal Hodgkin's disease if there is pressure on the portal circulation, deep progressive jaundice is not so common. Furthermore, the spleen is usually felt in abdominal Hodgkin's disease and the course is apt to be much longer than that in this case.

We can rule out any type of leukemia because of the blood counts, the absence of any glandular enlargement and the absence of splenomegaly.

An abscess of the liver is to be considered, but the course was much shorter than we would expect in that case; there was nothing to suggest amebic infection. Cirrhosis of the liver of the hypertrophic type must be considered. Again, the absence of splenomegaly, as well as the rapidity of the course, is against this possibility. Although a stone in the common duct could cause jaundice, ascites is uncommon. The temperature is usually higher and there are usually chills.

My diagnosis is malignant disease of the liver—carcinoma or sarcoma; I will not say whether primary or secondary. I believe malignancy comes nearer fitting the picture than does any other disease. As to the possibility of sarcoma, the accident could have caused some damage to the liver, with subsequent development of sarcoma; or trauma to bone at the time of the accident might have given rise later to a primary bone sarcoma with metastases to the liver. The patient is in the right age group for sarcoma, although this occurs much less frequently than carcinoma of the liver. Primary carcinoma of the liver has been reported in patients 15, 20 and 22 years old. Although primary carcinoma is, of course, much less frequent than secondary carcinoma of the liver, I think that this might be primary carcinoma. Carcinoma certainly would explain the rapid downhill course and the emaciation. Carcinoma may cause sufficient destruction of liver tissue to give a low blood sugar. Hiccoughs is a symptom of liver damage and pressure on the diaphragm. The absence of splenomegaly fits a diagnosis of carcinoma of the liver. An enlarged, tender liver and leukocytosis are often present in malignancy of the liver. Eosinophilia is also a common finding; the disappearance of the eosinophilia later in the disease may possibly have been due to a late severe infection, and the episode of pain on urination suggests that the genito-urinary tract may have been the site of such infection. Renal calculus may have

been present, possibly with hydronephrosis. We note that the urine contained a trace of albumin.

DR. W. L. GRIMES: Do you think that the spleen might have been enlarged but not palpable because of the amount of fluid present?

DR. W. M. JOHNSON: It is possible.

INTERN: We could not feel the spleen after paracentesis.

DR. C. H. MCCANTS: Does carcinoma of the liver usually give a high leukocyte count?

DR. W. M. JOHNSON: Counts have been reported as high as 36,000.

DR. C. H. MCCANTS: How do you explain the leukocytosis in carcinoma of the liver?

DR. J. LEVINE: Usually on the basis of reaction to the products of degeneration and necrosis, seen commonly in carcinoma of the liver.

Clinical Diagnosis

1. Acute hepatitis
2. Possible carcinoma of the liver

Dr. Johnson's Diagnosis

Carcinoma of the liver

Anatomical Diagnoses

1. Primary carcinoma of the head of the pancreas
2. Generalized carcinomatosis
3. Direct extension of carcinoma to duodenum
4. Cystitis cystica
5. Pulmonary atelectasis
6. Recent laparotomy
7. Old fractures of pelvis

Anatomical Discussion

DR. J. LEVINE: The carcinoma in the head of the pancreas was adherent to the overlying duodenum and had ulcerated through it, with edema and pseudo-papilloma formation in the immediately adjacent duodenal mucosa. These slides show the extension of the carcinoma from the head of the pancreas through the wall of the duodenum. All the malignant lesions showed extensive suppuration, degeneration and necrosis. The periportal region was all bound down by malignancy and adhesions; in this region, between the liver and the duodenum, was a large, walled-off abscess cavity filled with pus and having apparently originated in a broken-down mass of malignant tissue. The liver was filled with metastases and weighed over 4000 Gm. The spleen was also enlarged, weighing 525 Gm., although it contained no metastases. There were many metastases in the region of the portal fissure. There was no underlying cirrhosis of the pancreas. I could open and trace the distorted common and hepatic ducts. I could not trace the cystic duct. The gallbladder was very small.

MEDICOLEGAL ABSTRACT

J. F. Owen, M. D., LL. B.
Raleigh

Evidence: The opinion of one expert witness based upon the opinion of another such witness is incompetent as evidence.

Inasmuch as doctors are frequently called upon to give testimony in cases of a medicolegal nature, this case was selected in order to differentiate between expert testimony of fact and expert testimony of opinion.

The case at hand is a criminal action, the bill of indictment of which charged murder in the first degree. The evidence presented at the trial in Superior Court tended to show that on Sunday, May 31, 1942, at about 10 a. m., the dead body of a woman was found in the kitchen on the second floor of her garage apartment. The body was partly enveloped in a sheet, and a portion of the sheet was tied around the deceased woman's legs. One of the jets on the gas stove in the kitchen was about half open, and the dead body had a cherry red color, especially on the right side, where the blood had settled. The only bruises found were one on the right upper forearm, and one on the right hip. The bedroom in the apartment was found to be disarranged, probably indicating scuffling. The body of the deceased was buried, but later, by direction of the court, it was disinterred, and an autopsy was performed. The evidence of the doctors present at the postmortem examination tended to prove that the woman had died of carbon monoxide poisoning. The defendant, a colored woman, who had been employed as maid and cook for the deceased, was arrested, and shortly thereafter made a written confession. Later, at the trial, she denied any connection with the death of the deceased, and denied that the statements made to the various State's witnesses were voluntarily made.

The jury returned a verdict of not guilty of murder in the first degree, but guilty of murder in the second degree. From the judgment pronounced on the verdict of the jury, the defendant's attorney appealed to the Supreme Court, setting forth numerous exceptions. The one which is of particular interest to the medical profession was one concerning a question asked of the toxicologist.

When this case came on to be heard before the Supreme Court upon appeal, the Justice writing the opinion explained that the State sought a conviction of the defendant upon the theory that the deceased came to her death as a result of asphyxiation, or carbon monoxide poisoning, from gas issuing from a partially open jet of the kitchen stove. The autopsy was performed some time after the death of the deceased, and after she had been embalmed, and as a result, no accurate quantitative test could be performed. The pathologist testified, however, that there was no other cause of death, as far as he could determine, except carbon monoxide poisoning. With this opinion the toxicologist appearing for the State agreed, admittedly basing a substantial part of his testimony upon the findings of the pathologist.

The appellate court sustained the exception made by the defendant's attorney with reference to the testimony given by the toxicologist, and cited the case of **Dunegan versus Appalachian Power Company** as authority, which is as follows: "It is well settled that in the examination of experts as to matters which they have not themselves observed, testimony as to their opinions should be based on hypothetical statements propounded in proper questions, not on the testimony of other witnesses whom they have heard testify." The court also referred to the rule established in the suit of **Martin versus Hanes Company**, which is as follows: "While a medical expert may not express an opinion as to a controversial fact, he may, upon the assumption that the jury shall find certain facts to be as recited in a hypothetical question, express his scientific opinion as to the probable effect of such facts or conditions."

As a consequence of the decision of the Supreme Court in this particular case, as above stated, error was noted, and a new trial ordered. (North Carolina Supreme Court, Vol. 222, Page 242. Decision rendered Fall Term, 1942.)

MILITARY MEDICINE

ANNOUNCEMENT

Office for Emergency Management
War Manpower Commission

It is of the utmost importance that the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians, immediately has the name of any doctor who really is willing to be dislocated for service, either in industry or in overpopulated areas, and who has not been declared essential to his present locality. This is necessary if the medical profession is to be able to meet these needs adequately and promptly. We urgently request that any physician over the age of 45 who wishes to participate in the war effort send in his name to the State Chairman for the Procurement and Assignment Service in his State.

Frank H. Lahey, M. D.
Chairman, Directing Board

The following letter has been received from Dr. Hubert B. Haywood, State Chairman of Procurement and Assignment Service for North Carolina.

December 29, 1942

Dr. Wingate Johnson, Editor
North Carolina Medical Journal
Winston-Salem, N. C.

Dear Wingate:

Dr. Webb Griffith of Asheville was kind enough to represent North Carolina at the meeting of the Procurement and Assignment Service in Atlanta. Dr. Griffith reports that it was brought out that North Carolina as a whole has one doctor to every 2190 people, but obviously not uniformly distributed. The latest report gives North Carolina's percentage of physicians already in service as 167 per cent of her quota. It is also stated that there will be no effort to get more doctors out of any of the Southern states during 1943, except for an occasional doctor who is young and single or a specialist who is anxious to get into some particular job. It is estimated that the country as a whole can supply 11,000 more doctors from those now in practice, and that then no more can be spared. All graduates, after a year of internship, will go into service if they can qualify physically. The Government has assumed the responsibility of furnishing medical care for those communities suffering from a shortage of doctors because of camps or war plants. In this state Wilmington, New Bern and Fayetteville are the designated areas. The procedure in this state will be to have a survey made of Wilmington, New Bern, and Fayetteville by a member of the U. S. Public Health Service. Then the Procurement and Assignment Service of this state will be given the opportunity to see if there can be a relocation of doctors in the state to handle the situation.

To date this is the latest information. As soon as I have additional information, I shall be glad to notify you.

Sincerely yours,
Hubert B. Haywood, M. D.

OFFICE OF CIVILIAN DEFENSE

Plasma for Civilian Defense

The Medical Division of the Office of Civilian Defense and the United States Public Health Service report the current status of the blood plasma program which was initiated in the early spring.

The report indicates that 130 hospitals have now received grants-in-aid and are preparing reserves of plasma to total at least 63,130 units. In addition to this reserve, 27,500 units of frozen plasma have been obtained through the Army and Navy from blood collected by the American Red Cross. This supply has been distributed. The Medical Division has also procured 37,500 units of dried plasma from blood collected by the American Red Cross, and this supply is in process of distribution.

The total reserve, which is largely concentrated in the 300 mile coastal target areas, will be 126,630 units for treatment of casualties resulting from enemy action. In addition, 1250 units are in Puerto Rico and 250 in Alaska.

In addition to these sources of plasma, the Red Cross is distributing to target areas 5,000 units which will be available to the Office of Civilian Defense for treatment of civilian casualties resulting from enemy action. Many hospitals which have not received grants under the OCD-USPHS program are also preparing plasma reserves which total approximately 50,000 units.

Plasma required for the treatment of war-related injuries may be obtained by any community through its Chief of Emergency Medical Service. To meet such emergencies, plasma may be transferred: (1) within a state by the State Chief of Emergency Medical Service; (2) within a Region by the Regional Medical Officer; and (3) from one Region to another by the Medical Division, U. S. Office of Civilian Defense.

Nurses' Aides for Veterans' Hospitals

Training of larger numbers of nurses' aides and additional hours of service for those already trained will be necessary as a result of a request from Brig. Gen. Frank T. Hines, Administrator of Veterans Affairs, for the assignment by the American Red Cross of nurses' aides to Veterans Administration Facilities. The Medical Division of the Office of Civilian Defense issued a memorandum October 31 to its Regional Medical Officers announcing the new arrangement.

The Red Cross in a memorandum addressed to its Area Offices for transmission to local chapters approved this assignment for nurses' aides, but emphasized that the needs of the civilian hospitals and other community organizations should not be neglected. In communities without facilities for training nurses' aides, an effort should be made to recruit them from cities nearby, the memorandum said. Requests should be sent to the Area Offices of the Red Cross.

Nurses' aides who serve in Veterans Administration Facilities will be paid at the rate of one dollar a year, since the Veterans' Administration may not under the law accept nursing service without payment for it. These aides will then be considered government employees and must be American citizens. The Veterans Administration is prepared to furnish quarters, meals and laundry when necessary. Assignment of aides to the hospitals will be the responsibility of the local Red Cross nurses' aide committee, of which the local chief of Emergency Medical Service is a member.

New Method of Administering Morphine

Because of the critical shortage of tin, the U. S. Office of Civilian Defense has been unable to procure syrettes for administration of morphine by physicians of Emergency Medical Service. To meet this serious difficulty, a new device using glass and plastic has been developed.

This device consists of a small, sealed-glass ampule containing ¼ gr. or ½ gr. of morphine in solution. This solution is under sufficient pressure to eject the entire contents. A piece of transparent plastic tubing encloses the neck of the ampule and connects it to the hub of the needle. The shaft of the needle is enclosed in a small glass tube, to which is attached a stylet. At the hub of the needle within the plastic tube is a small filter.

Following is the method of using the ampule:

1. The body of the ampule is grasped in the right hand.
2. The glass tube protecting the needle is withdrawn by a twisting and pulling movement of the fingers of the left hand.
3. With the needle pointing down and the body of the ampule vertical to the skin, the needle is inserted by jabbing it under the skin.
4. When the needle is in place, and with the ampule vertical to the skin, pressure is exerted with the thumb and two fingers on the plastic tubing to break the neck of the ampule. It is important that the ampule be held vertical to the skin, in order that morphine may not be lost by improper technic.
5. The pressure within the ampule ejects the contents. The filter prevents glass splinters from clogging the needle.
6. When the ampule is empty, the needle is withdrawn and the whole device is discarded.

First Aid Training No Longer Required For Staff Units In Citizens Defense Corps

Members of staff units of the U. S. Citizens Defense Corps are no longer required to acquire ten hours of training in first aid, the U. S. Office of Civilian Defense has announced. It was pointed out that members of staff units would be employed in the headquarters of the Citizens Defense Corps rather than at the scene of air raid emergencies.

Air raid wardens, auxiliary police, auxiliary firemen, decontamination squads, messengers and members of the drivers corps are still required to have at least ten hours of first aid training. Nuses' Aides are required to take the regular first aid instruction in addition to their specified training given by the American Red Cross in connection with approved hospitals. The Medical Corps, a professional group, has special training as directed by the Medical Division of OCD.

Federal Financing of Transportation To Emergency Base Hospitals

Federal financing of transportation necessary in evacuating casualties and other hospitalized sick to Emergency Base Hospitals can be accomplished only through State evacuation authorities, Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, points out in a circular (Medical Series No. 22) prepared for officials of the Emergency Medical Service.

Allotment of funds for all phases of evacuation will be made by the Office of Defense Health and Welfare Services, through its Regional Directors, to State evacuation authorities and the several State agencies concerned in the fields of EMS, health, welfare and education. Evacuation of casualties and other hospitalized sick from casualty receiving hospitals to emergency base hospitals will be initiated and carried out by the Emergency Medical Service, but it may take place concurrently with an evacuation of other priority groups. The directive urges that Regional Medical Officers, State Chiefs of Emergency Medical Service and State Hospital Officers participate in the planning carried on by the State authority in order that provision may be made in advance for the financing of this phase of evacuation.

BULLETIN BOARD

SECRETARY'S MESSAGE

As a society of physicians facing a New Year we would do well to be reminded of the traditional custom, that of taking inventory. In this way we may profitably consider some events in our recent experiences and some of the problems we will be called upon to meet.

The past year has indeed been an eventful one, for our Society finds itself today in the midst of a World War whose influence upon the lives of each of us will be immeasurable. Several hundred of our fellow physicians have been called from our state and are with the armed forces of our country now scattered to the far ends of the earth. (May I pause for a moment to say to these men, "Your Society is justly proud to claim you as one of its members. You are making a tremendous sacrifice, at the same time responding to an expression of the great tradition of Service which has ever been inherent in our profession. May the Great Physician bless you and keep you and soon bring this horrible war to an end so that you may return to the rank and file of organized medicine in North Carolina and to our American way of life.")

By official action of the House of Delegates at Charlotte in May, 1942, the policy of waiving dues of members serving with the armed forces will be continued in 1943. Names of members now in service will be automatically transferred to the 1943 Roster of Members.

Your State Medical Society represents organized medicine in North Carolina and can function to its full efficiency only by the cooperation and interest of each of its 1917 members (largest membership in the history of the Society). Here we must consider some of the problems we will be called upon to meet:

1. Doctors for the armed forces must be supplied.
2. Our expanding program of industrial medical service must be maintained.
3. The civilian population must still be cared for.
4. In spite of depletion of medical staffs, the expanding program of hospital service must be taken care of.
5. Our future doctors—by this I mean as an organization—must work in harmony with the Man Power Commission in a determined effort to see that the future supply of physicians will not be curtailed.

Naturally the work of your State Society has been somewhat restricted during the past year. Some of the district meetings have been called off; nevertheless, your President and I have visited various sections of the state and expect to continue as far and as long as thin tires and gasoline rationing will permit.

President Rankin of the American Medical Association, in his address before State Secretaries and Editors at Chicago in November, urged that smaller medical groups such as county, district and state societies continue to hold their meetings in spite of the fact that the meeting of American Medical Association and those of the Colleges of Physicians and Surgeons have been abandoned for 1943.

This office feels that, to guard the home front effectively, the need for active and alert medical societies is more acute than ever before. Medicine must be well organized in order to meet adequately the many war-time problems which are arising. You are obligated to your colleagues in military service, to the public, to your profession and to yourselves to see that your county, district and state medical societies remain or become influential organizations in 1943. They need and should have your active support.

Three important things to remember are:

1. Attend meetings.
2. Take part in committee work.
3. PAY YOUR DUES NOW.

Finally, just a word to secretaries of county societies:

Please, as early as you can, send in your reports, including not only the names of your officers and your members but your delegates to the meeting of the State Society, too. Remember to keep me informed as your members leave for military service and to send me any other items of interest from your society. We are eager for news of anything that happens in your society.

ROSCOE D. MCMILLAN, M.D.
Red Springs

News Notes From the State Board of Health

Two hundred employees of the State Board of Health, including directors, consultants and others, met in the auditorium of the State Laboratory of Hygiene in Raleigh during December, and launched the North Carolina Academy of Public Health, which, so far as is known, is the first organization of its kind in the United States.

The objects of this new organization are:

1. The cultivation of the science of public health.
2. The advancement of the character and honor of the public health profession.
3. The elevation of the standard of education of all public health workers.
4. The promotion of public health and extension of its benefits to ALL people.

This newly-created organization elected the following as its first group of officers: Dr. George M. Cooper, Assistant State Health Officer, President; Dr. Ernest A. Branch, director of the Division of Oral Hygiene, vice-president; and Mrs. Anne B. Edwards, the efficient secretary to the State Health Officer and well-known in the circle of professional and business women, secretary and treasurer.

* * * *

The Office of Price Administration has ordered an immediate investigation of the practice of making an extra charge for paper cups in which soft drinks and refreshments are served, it was disclosed in a letter received from Donald H. Wallace, Director of Industrial Manufacturers' Price Division, by Dr. Carl V. Reynolds, North Carolina State Health Officer.

In the meantime, Dr. Reynolds was requested to bring further complaints against this practice to the attention of Norman C. Shepherd, State Attorney in North Carolina for the OPA, whose address is 227 East Edenton Street, Raleigh. Already, the names of many alleged violators have been forwarded to the OPA, together with the names of informants sent to Dr. Reynolds during the past several months.

On August 2, Dr. Reynolds was informed by Mr. Wallace, the OPA warned sellers of beverages in paper cups to discontinue this practice, which has been ruled illegal, unless it can be shown that the charges were in force as early as March, 1942.

"We are not interested in the enforcement of ceiling regulations," Dr. Reynolds pointed out, "but we are tremendously interested in preventing the spread of contagious diseases by means of the 'common cup' and we realize that when an extra charge is made for refreshments served in paper containers, this has a tendency to discourage their use. Thus, a penalty is placed on sanitation, and this practice ought to be stopped. . . .

"When, in the future, you are charged extra for paper cups, require the dispenser to inform you definitely whether the charge was levied after March. If it was and the dispenser insists that it be paid, it would be a good idea to obtain a receipt and mail this, together with the name of offender, to the OPA, in order that it may be used as evidence.

"So far as the State Board of Health is concerned, there will be no letup in its insistence that health and sanitary rules be rigidly enforced. The war, instead of forming an excuse for laxness, constitutes a real reason why there should be none. If there was ever a time to guard against the spread of disease—and the 'common drinking cup' is one of the surest disease carriers—it is now. We cannot afford to take any chances."

During the year, full-time public health protection has been extended to four counties—Scotland, Pasquotank, Montgomery and Iredell—with a combined population of 110,504, bringing the grand total of our people now actually enjoying this protection in 86 of the 100 counties to 3,340,975. This figure represents 93.5 per cent of our entire population—men, women and children, including all races living within our borders, white people, Negroes, Indians and such aliens who have taken up residence among us. Arrangements are underway for the admission of two other counties, which will add 24,710.

North Carolina's work in the field of venereal disease eradication has been so outstanding that, during the year 1942, the United States Public Health Service decided to give its financial aid to the establishment here of a "proving ground" for developing a program which, if it is successful, will be used as a working model for the entire United States. This new set-up, educational in its nature, already is functioning under the direction of a well-staffed organization.

North Carolina now has more than 300 State-supervised clinics for the treatment of venereal diseases, this number exceeding that of any other State in the Union. In these clinics, more than 6,000 are being treated every week for syphilis, of which there were 13,117 new cases admitted through November, not including 2,309 reported by private practitioners.

We have continued our efforts in behalf of our mothers and babies, to whom more than 300 clinics, located at strategic points throughout the State, now are available; there has been a continued expansion in the activities of the Oral Hygiene Division, the object of which is to protect our school children, now numbering nearly a million, against diseases resulting from poor mouth health. Work of the Crippled Children's Division has gone forward under adequate office management, in cooperation with a staff of eleven eminent orthopedic surgeons and twenty-two hospitals, with twenty clinics being conducted regularly at points throughout the State.

With State funds approximating $129,000, the State Laboratory of Hygiene during the past year has yielded to the people of North Carolina returns in services and materials conservatively valued at $3,000,000. While the war has increased the work of this division of the State Board of Health, it has proceeded without interruption, on an expanded basis.

In further pursuance of the nutrition program commenced in 1940, the work of extending this phase of public health educational work has been carried on with great effect during the past year. The ultimate objective is, of course, to set up a well-rounded organization in each of the State's 100 counties. In this task, the State Board of Health, shouldering its share of the responsibility, is working in close cooperation not only with State, Federal and local agencies, but with civic and other clubs, schools and colleges, and anticipates the eventual establishment of a division devoted exclusively to nutrition activities.

The Board already has been able to secure the services of two Rockefeller Foundation representatives. The time of one of these has been devoted to laboratory and field research into the prevalence of malnutrition among certain representative groups of our county populations while the other has promoted the organization of nutrition committees, with the object of teaching our people how to select, prepare and serve in their daily meals those foods that insure maximum health and morale.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

The Surgeon General, United States Public Health Service, approved through the Office of Civilian Defense a grant of $1,610.56 under the Blood and Plasma Bank Program for aid in establishing a Blood and Plasma Bank at the North Carolina Baptist Hospital. All the students of the Bowman Gray School of Medicine voted to give up to two pints of blood for a reserve of 300 pints in the Blood Bank to be used in war emergencies.

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The Private Diagnostic Clinic has been expanded to include seven additional examining rooms.

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Dr. Tinsley R. Harrison, Professor of Medicine, and Dr. Wingate M. Johnson, Professor of Clinical Medicine, spoke at the Ninety-Fourth Annual Session of the Peedee Medical Association at Florence, South Carolina, on December 17. Dr. Harrison's subject was "Treatment of Congestive Heart Failure" and Dr. Johnson spoke on "Management of the Nervous Patient".

Ninth District Medical Society

The Ninth District Medical Society met in Statesville on December 18. Dr. George T. Harrell of the Bowman Gray School of Medicine and Dr. James P. Hendrix of Duke University School of Medicine gave lectures on War Gases.

Alamance-Caswell Medical Society

The regular meeting of the Alamance-Caswell Medical Society was held at the Alamance Hotel on December 8. The following officers were elected: President, Dr. J. B. Walker of Burlington; Vice President, Dr. J. L. Johnson of Graham; Secretary-Treasurer, Dr. P. Y. Greene of Graham; Delegate for the State Medical Society, Dr. A. J. Ellington of Burlington; Alternate Delegate for the State Medical Society, Dr. R. E. Brooks, Burlington; Board of Censors, Dr. P. Y. Greene, Chairman for one year; Dr. Donald E. Robinson of Burlington for two years; Dr. Alex W. Simmons of Burlington for three years.

Buncombe County Medical Society

The Buncombe County Medical Society held its annual business meeting for the election of officers and reports of committees on December 14. The banquet was not held this year.

The **Bulletin** of the Buncombe County Medical Society will suspend publication for the duration of the war. A mimeographed sheet containing program announcements and news items will be issued monthly in its stead.

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting for the election of officers in Winston-Salem on December 8. Dr. W. L. Kirby was elected president for 1943. Other officers elected were: First vice-president, Dr. E. S. Thompson; second vice-president, Dr. C. H. McCants; treasurer, Dr. Howard Starling; secretary, Dr. Carlton N. Adams; board of censors, Dr. J. K. Pepper for 1943-45; new delegates to state medical society, Dr. R. R. Garvey, Dr. C. H. McCants. Alternates are: Dr. J. A. Harrill, Dr. George Holmes, Dr. Rex Sink, Dr. O. E. Wright, Dr. V. C. Lassiter.

Dr. C. Nash Herndon was admitted to membership by transfer from Mecklenburg county. Dr. J. E. Kerr, a former member, was a visitor.

Resolutions to the Wake County Board of Health

At the November meeting of the Wake County Medical Society, held November 12, 1942, the greatly increased prevalence of typhus fever was discussed. It is generally recognized that while rat fleas are the vectors of the disease, cats and dogs, as well as rats and other flea harboring animals, serve as hosts, harboring infected fleas, and thereby aid in spreading the disease.

During part of this year 1942, more than 200 cases of typhus fever have been proven in North Carolina by agglutination tests made at the State Laboratory of Hygiene. Six cases have been recognized similarly in Raleigh and of these two have died. The typhus fever fatality rate is about 20 per cent in North Carolina. It is impossible to estimate the probable number of cases that for various reasons have not been diagnosed. In 1941, in North Carolina, 190 cases of typhoid fever were reported with a fatality rate of 10 per cent. Obviously, at present, typhus constitutes a problem of major public health importance, far surpassing typhoid fever in danger and importance in North Carolina as well as Wake County and Raleigh.

In the interest of the health of the public, the Wake County Medical Society urges the Wake County Board of Health to take the proper action to protect the citizens of Raleigh and Wake County. It is important that rats be killed, but this epidemic is being spread by fleas from cats and dogs. The cases in Raleigh have been closely grouped in an area located away from the recognized rat infested districts of the city; they have been closely grouped in an area from which cats and dogs heavily infested with fleas have been allowed to range at will off the premises of their owners.

We wish to remind you that this epidemic is a threat to the public health and that the danger cannot be averted so long as cats and dogs are allowed to range off the premises of their owners.

Committee for the Wake County Medical Society

Dr. Robert L. McGee
Dr. Charles P. Eldridge
Dr. Verne S. Caviness, Chairman

News Notes

Dr. Alexander H. Redding of Cedar Falls died of a heart attack at his home on November 16. Dr. Redding attended the College of Physicians and Surgeons at Baltimore and had been in active practice since 1883. He was an honorary member of the county and state Medical Societies.

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Dr. Harold Clark, President-Elect of the Buncombe County Medical Society, has reported for active duty in the Army Medical Corps.

Presentation of the Gorgas Medal

At a luncheon meeting of the Association of Military Surgeons of the United States, held in Washington on December 15, the Gorgas Medal, founded by John Wyeth and Brother, was awarded to Rear Admiral Edward R. Stitt, U.S.N., Brigadier-General Jefferson R. Kean, U. S. A., and Brigadier-General Frederick F. Russell, U. S. A., for distinguished service in preventive medicine for our armed forces.

AUXILIARY

The following Christmas message was sent to members of the Auxiliary from the State President, Mrs. Moore.

2415 Warwick Road,
Winston-Salem, N. C.
December 21, 1942

Dear Auxiliary Member:

I should like to say "Merry Christmas," and know that each one of you would have the merriest of holidays this year. But "merry" is probably not the word to use, for who can be merry in a war-torn world, with so many of our loved ones far away, and so much sorrow and suffering abroad in all lands? But we can be grateful for an opportunity to serve, and give, and love and pray. Doctors' wives throughout this land will work with high courage to fulfill this mission.

We shall as nearly as possible preserve for our families a normal, cheerful home-life. We shall accept new responsibilities at home and in the community to relieve the shortage of helpers in many lines of work. The time that we formerly spent in the leisure of social activities, we shall dedicate to the Red Cross, and find joy in the doing of it. We shall sew, and knit, and garden, and can, and sell bonds, and participate in every activity that will help to win the war. We shall deny ourselves of many accustomed luxuries so that those who need may be served.

We shall not forget how much we need each other, and with affection and sympathy we shall work together.

Particularly at Christmas-time, our thoughts shall go back to Bethlehem. It has been said that the Christmas story has more to say to a troubled world than to a prosperous one. From it we learn that love, tolerance, service and sacrifice are older, surer, mightier than force.

So let us face this Christmas with a resolve to give *ourselves* to the task of bringing Peace and Joy back to the world.

With best wishes,

NELLIE M. MOORE, (MRS. R. A.)
State President

ORGANIZATION WORK OF THE AUXILIARY

MRS. SIDNEY SMITH
State Chairman of Organization

The New Year unfolds before us a vista of great hope, great promise. We know that there is much rough going before our hopes can be realized, and without complaint we shoulder the added responsibilities which help us attain the goal. The war has disrupted all phases of life, and the Auxiliary, too, is experiencing new problems, particularly in the field of organization work.

The organization of the Auxiliary follows in form that of the State Medical Society, being divided into ten medical districts covering all counties in the state. Each district has its own councilor, who confers with county auxiliaries and acts as liaison agent between the county groups and the state organization. The councilor is the interpreter of the Auxiliary, and to her falls the duty of keeping members informed on projects and policies of the State Auxiliary, of defining its objectives, and of serving as a constant force for stimulating interest in the work of the organization among all doctors' wives in her district.

Of the ten councilors included on the State Auxiliary Board of Directors this year, three have found it necessary to resign in order to be with their husbands now in the armed services. It is too soon yet to predict whether or not our total membership will suffer from similar circumstances occurring throughout the state. It is not too soon, however, to issue an appeal to the wife of every doctor belonging to the State Medical Society to pay her dues this year, whether she is absent from her home county or not—even those who may be scattered to the far corners of the nation. For war or no war, the obligations of your State Auxiliary remain, and it is chiefly through membership dues that these obligations are met. It is the responsibility of each doctor's wife at least to maintain her membership even if she is unable to participate actively in the work of the Auxiliary.

Nor can these obligations be considered such, for in reality they are blessings which the Auxiliary provides for members of its own professional family. These include the maintenance of beds in two State sanator-

iums for the benefit of doctors or members of doctors' families suffering with tuberculosis, and the support of the Student Loan Fund which is available to sons and daughters of doctors in need of financial aid in completing college educations.

It is equally necessary that the Auxiliary maintain its present membership and strive to increase and grow stronger during the present crisis. It has valuable educational and legislative information to impart and must reach more women than ever before if it is to be a strong ally of the medical profession in the aftermath of war.

In spite of handicaps—the loss of good officers, the shifting of jobs in mid-year, the inability of State officers and councilors to travel among the county auxiliaries, the press of time for all women—the Auxiliary is continuing to grow! Since the last annual state meeting, at which seventeen counties were reported organized, two new counties have been added, making a total of nineteen organized county auxiliaries now in North Carolina. We proudly welcome the two new counties—Wilkes-Alleghany and Randolph.

To step-up the membership drive members of county auxiliaries have been requested to see the wives of all doctors belonging to county societies, urging them to pay dues and remitting all dues as early as possible to the State treasurer. The response has been superb.

The councilors will soon issue cards to wives of doctors in counties having no auxiliaries, appealing to them to join as members-at-large. In this manner the State Auxiliary strives to give to wives of all members of the State Medical Society the opportunity for membership. Any doctor's wife who is not reached and who wishes to contribute to the work of the Auxiliary may perform a great service by sending one dollar, for annual dues, along with her name and address, to the State Auxiliary Treasurer, Mrs. E. C. Judd, 2108 Woodland Avenue, Raleigh, N. C.

A list of organized county auxiliaries and their presidents follows:

Caldwell—Mrs. L. M. Fetner, Lenoir
Craven—Mrs. C. S. Barker, New Bern
Duplin—Mrs. G. V. Gooding, Kenansville
Forsyth—
Mrs. Beverly N. Jones, Winston-Salem
Gaston—Mrs. W. M. Roberts, Gastonia
Guilford—Mrs. W. T. Tice, High Point
Halifax—Mrs. F. W. M. White, Halifax
Hoke—Mrs. A. A. Vanore, Sanatorium
Mecklenburg—
Mrs. Raymond Thompson, Charlotte
New Hanover-Brunswick-Pender—
Mrs. Graham Barefoot, Wilmington
Person—Mrs. Hugh Beam, Roxboro
Pitt—Mrs. W. I. Wooten, Greenville
Randolph—Mrs. R. P. Sykes, Asheboro
Robeson—Mrs. H. T. Pope, Lumberton
Rockingham—Mrs. C. V. Tyner, Leaksville
Sampson—Mrs. J. S. Brewer, Roseboro
Wake—Mrs. Charles E. Flowers, Zebulon
Wayne—Mrs. S. B. McPheeters, Goldsboro
Wilkes-Alleghany—
Mrs. W. K. Newton, North Wilkesboro

The councilors in the ten districts of the State Auxiliary are:

First District—
Mrs. Z. B. Owens, Elizabeth City
Second District—
Mrs. Oscar A. Kafer, New Bern
Third District—
Mrs. D. M. Royal, Salemburg
Fourth District—
Mrs. C. F. Strosnider, Goldsboro
Fifth District—
Mrs. A. L. O'Briant, Raeford
Sixth District—Mrs. P. G. Fox, Raleigh
Seventh District—Mrs. G. Aubrey Hawes, Charlotte (resigned)
Eighth District—Mrs. Edward T. Harrison, High Point (resigned)
Ninth District—
Mrs. Alfred A. Kent, Jr., Granite Falls
Tenth District—Mrs. D. I. Campbell King, Hendersonville (resigned)

Tuberculosis contracted or aggravated because of working conditions is to be considered compensable, but in workman's compensation laws greater consideration should be given to precipitating causes than to predisposing factors. Large numbers of persons with inactive or mildly active tuberculosis are able to work in our factories without becoming ill because working conditions are favorable. But occupations such as that of policeman or soldier, involving bad hours, undue exposure to the elements and other unhygienic conditions, may definitely initiate tuberculous activity.— A. Licurzi, Rev. Asoc. med. argent., Nov. 15-30, 1941.

The World Over

Tuberculosis already appears on the increase in the warring nations in the second world conflict. No single cause is apparent. All the factors concerned in the other world war again operate. Malnutrition is known to be serious in certain countries. Esmond R. Long, M.D., Amer. Rev. of Tuber., June, 1942.

BOOK REVIEWS

Diseases of the Liver, Gallbladder and Bile Ducts. By S. S. Lichtman, M. D., F. A. C. P., Adjunct Physician, Mt. Sinai Hospital, Assistant in Post-Graduate Medical School Instruction, Columbia University, New York. 906 pages, illustrated with 122 engravings and a colored plate. Price, $11.00. Philadelphia: Lea and Febiger, 1942.

There has long been a need for a comprehensive monograph on the liver and its diseases. Except for the classical treatise by Rolleston which appeared some years ago, there has been no book dealing exclusively with this important organ, which is involved in so many disease processes. Dr. Lichtman presents in this volume a systematic survey of existing knowledge of the structure, function, pathology, diagnosis and treatment of diseases involving the liver and biliary tract. The book is well written and arranged in a clear and logical sequence. The typography is excellent. The omission of any extended discussion of hypoglycemia and its attendant symptoms as a consequence of hepatic dysfunction, of secondary melanosarcoma of the liver, or of the occurrence of eosinophilia in primary carcinoma of the liver seems surprising in so comprehensive a text. However, these are minor criticisms and the book will offer much valuable information to the internist, practitioner and student of medicine.

Ophthalmology and Otolaryngology. Volume II of Military Surgical Manuals. Prepared and edited by the Subcommittee of Ophthalmology and Otolaryngology of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Price, $4.00. 331 pages, with 124 illustrations. Philadelphia and London: W. B. Saunders Company, 1942.

Outstanding authorities were selected to write this text. Each has ably simplified, condensed and arranged the subject matter. Many aspects of this manual will be of value to every medical officer. The volume should be frequently consulted by those assigned to ophthalmology and otolaryngology. A large percentage of the physicians entering the armed services from civilian practice will lack the experience and judgment necessary to diagnose and treat successfully many of the conditions discussed.

The chapters on eye consider functional testing, examination of the eye, acute visual disturbances, acute inflammations and injuries, local anesthesia about the orbit, and medical and surgical treatment and procedures.

Subjects considered under ear, nose and throat include primary treatment of gunshot wounds of the face; the ear, nose and throat in general; fractures and injuries of the temporal bone, labyrinth, cribriform plate, throat, larynx, trachea, and esophagus; group testing of hearing; malingering; petrositis; the ear in military aviation; reeducation of the soldier with speech and hearing defects; infections of the throat and chemotherapy.

Military Medical Manuals — Manual of Dermatology: Issued under the Auspices of the Committee on Medicine of the Division of Medical Sciences of the National Research Council by Donald M. Pillsbury, M.D.; Marion B. Sulzberger, M.D.; Clarence S. Livingood, M.D. 421 pages with 109 illustrations. Price, $2.00. Philadelphia and London: W. B. Saunders Company, 1942.

This "Military Medical Manual" gives in streamlined form the essentials of dermatology, particularly as it concerns adult males. The numerous cuts, while not colored, give excellent conceptions of the common skin lesions that occur in this group. The verbal description is good, and the treatment is given in some detail. Even though planned for military use chiefly, it can be recommended to civilian physicians who wish a handy manual for constant reference.

Surgical Physiology. By Joseph Nash, M.D., Professor of Clinical Surgery, New York University College of Medicine; Associate Visiting Surgeon, Bellevue Hospital, New York City; First Lieutenant, Medical Corps, U. S. Army; Assistant Chief of the Surgical Service, Lovell General Hospital, Fort Devens, Massachusetts. 496 pages. Price, $6.00. Springfield, Illinois: Charles C. Thomas, 1942.

There has long been a need for a book on surgical physiology which would compare to Best's and Taylor's **Physiological Basis of Medical Practice.** That need has been filled adequately in the present volume. Certainly every thoughtful surgeon feels the need for a more physiological training and has wished for a quick reference book on physiological problems related to surgery. This book is not—nor is it meant to be—either a physiological or a surgical textbook. There is, however, a broad field between the care of the surgical patient and academic physiology which this book covers. It can be recommended to every physician interested in surgery.

Constitution and Disease. Applied Constitutional Pathology. By Julius Bauer, M. D., Professor of Clinical Medicine, College of Medical Evangelists, Los Angeles, California. 206 pages. Price, $3.50. New York: Grune and Stratton, 1942.

The author of the present volume is a former professor of medicine at the University of Vienna and the author of a well known German text and of many papers on the relation of constitution and heredity to human disease. That heredity factors and constitutional make-up predispose individuals to certain diseases is now generally recognized. Unfortunately, the difficulty of dealing with this relationship in an objective and scientific manner has led to many fantastic theories and much loose-thinking. Dr. Bauer has succeeded in avoiding this defect by adhering closely to the accepted facts and omitting the more speculative aspects of the subject. Considering the difficulty of the subject and the lack of fundamental facts available at present, the author has done an excellent job. The book will prove of value in aiding the physician to appreciate the role which constitutional factors play in disease. An index would have added to the value of the book, but is unfortunately lacking.

Blood Substitutes and Blood Transfusions. Edited by Stuart Mudd, M. A., M. D., Professor of Bacteriology, University of Pennsylvania School of Medicine; and William Thalhimer, M.D., Director, Human Serum Division, Public Health Research Institute of the City of New York, Inc. 407 pages. Price, $5.00. Springfield, Illinois: Charles C. Thomas, 1942.

In this monograph the experiences of seventy investigators in this very important aspect of medicine have been recorded. The material was presented as a symposium before the American Human Serum Association at its annual meeting in 1941. The original papers were revised for this publication, so that new developments would be included, and the discussions following the papers were also included for completeness.

By way of background, the first four chapters are devoted to a discussion of the etiology and mechanisms of secondary shock. This is followed by a detailed discussion of methods of preserving plasma and serum by freezing and by desiccation. A comparison of these methods is given with regard to bacteriological control, flocculation, complement, prothrombin content, and the electrophoretic patterns. Among other topics discussed are the production and use of crystalline human hemoglobin, hemoglobin-saline solutions as transfusion media, the use of human albumin, casein digests parenterally administered, and the antigenicity of the Rh blood factor in transfusion and pregnancy. The monograph concludes with a discussion of therapeutic experiences in the use of serum and plasma. The book's usefulness is increased by the extensive bibliography covering each topic discussed.

The subject of blood substitutes and transfusions is one of ever increasing importance in medicine, and the information available is widely scattered through medical literature. Therefore, this very timely collection of experience and thought makes available to the alert and busy physician a wealth of material otherwise difficult to obtain.

Viruses and Virus Diseases. By Thomas M. Rivers, M. D., Sc. D., Director of The Rockefeller Institute for Medical Research, New York City. 133 pages. Price, $2.50. Stanford University, California: Stanford University Press, 1939.

One of the highest compliments that can be paid any doctor is to be selected to deliver the Lane Medical Lectures, which were established in 1896 by Dr. Levi Cooper Lane, founder of Cooper Medical College, which in 1908 became the School of Medicine of Leland Stanford University. Of the twenty-six lecturers who preceded Dr. Rivers, fifteen were from England, Scotland, Germany, Austria, Italy or Egypt. It is no surprise to those who know of Dr. Rivers' high standing in research that he was selected to summarize the present knowledge of viruses and virus diseases—knowledge to which he had contributed perhaps more than any other man.

The book contains five chapters or lectures: (1) Lymphocytic Choriomeningitis; (2) Pathology of Virus Diseases; (3) Immunological and Serological Phenomena of Virus Diseases; (4) Nature of Viruses; and (5) Treatment and Prevention of Virus Diseases.

It is hardly necessary to say that this book is eminently worth while to any one who wants to acquaint himself with the modern conceptions of a most important field in medicine. It is well written, well illustrated, and authoritative.

Clinical Atlas of Blood Diseases. By A. Piney, M. D., M.R.C.P. London, Physician, St. Mary's Hospital for Women and Children; and Stanley Wyard, M. D., F.R.C.P. London, Physician, The Royal Cancer Hospital. Fifth edition. 134 pages with 43 illustrations in color. Price, $5.00. Philadelphia: The Blakiston Co., 1942.

Advances in hematology have been so rapid that the average practitioner often looks upon the subject as being too complex and difficult to warrant his attention. This attitude is not justifiable, for with little trouble an examination of the blood smear will often reveal the diagnosis of many obscure disorders. For the guidance of the student and practitioner of medicine this little manual will prove invaluable. It outlines in succinct form and reproduces in colored plates the blood picture encountered in the common blood dyscrasias. It well deserves the popularity it has enjoyed among medical students since its first appearance in 1930, and will prove a valuable acquisition for the general practitioner.

Medical Parasitology. By James T. Culbertson, Assistant Professor of Bacteriology, College of Physicians and Surgeons, Columbia University. 285 pages, illustrated with 21 plates, 16 figures and 7 tables. Price, $4.25. New York: Columbia University Press, 1942.

This small volume, unlike many of the texts on parasitology, is written from the viewpoint of the medical student or practicing physician rather than from the viewpoint of a biologist. The material has been most conveniently arranged. There is an introductory discussion of parasitic diseases as opposed to bacterial diseases in regard to epidemiology, immunity, and therapy. The diseases are then discussed in the second part according to the type of parasite. The illustrations are all photographs, excellently reproduced. A discussion of therapy and all-important prophylaxis is included under each disease. There is a short appendix on technical methods. This volume fills more closely than any other this reviewer has seen the need for a short, clear, easily readable book for reference and for review on a subject of increasing importance.

Four Treatises of Theophrastus von Hohenheim, Called Paracelsus. Translated from the original German, with introductory essays by C. Lillian Temkin, George Rosen, Gregory Zilboorg and Henry E. Sigerist, and edited, with a preface, by Henry E. Sigerist. Price, $3.00. 256 pages. Baltimore: The Johns Hopkins Press, 1941.

The Institute of the History of Medicine of the Johns Hopkins University has made a notable contribution to historical medicine by reprinting with illuminating notes various classical texts and documents. The present book is the first volume of a second series of these contributions. It deals with Paracelsus, the gifted pioneer of modern pharmacy and medicine, in whom the intellectual atmosphere of alchemy and astrology was combined with that of the renaissance in science and discovery which took place at the beginning of the sixteenth century. The present volume can be recommended to all who are humanistically inclined as an excellent study of Paracelsus, his times and works.

Sex Hormones. Edited by F. C. Koch, Professor Emeritus of Biochemistry, the University of Chicago; and Philip E. Smith, Professor of Anatomy, Columbia University; with a foreword by Frank R. Lillie. 146 pages. Price, $2.50. Lancaster, Pa.: The Jaques Cattell Press, 1942.

This monograph is the ninth volume of a series of Biological Symposia devoted to current interests in the field of biology. It contains the addresses on "The Comparative Biology and Metabolism of the Testicular and Ovarian Hormones", delivered at the University of Chicago at its Fiftieth Anniversary celebration, and the Symposium on "Hormonal Factors in Sex Inversion", presented at the annual meeting of the American Association of Anatomists. The eight chapters in the present volume are: "The Comparative Biology of Testicular and Ovarian Hormones", by C. R. Moore; "The Comparative Metabolic Influences of the Testicular and Ovarian Hormones", by A. T. Kenyon; "The Metabolism of Estrogens", by E. A. Doisy; "The Excretion and Metabolism of Male Sex Hormones in Health and Disease", by F. C. Koch; "Sex Inversion in the Plumage of Birds", by C. H. Danforth; "Sex Inversion in the Amphibia", by R. R. Humphrey; "Hormonal Factors in Sex Inversion", by R. R. Greene, and "Hormones and Experimental Modification of Sex in the Opposum", by R. K. Burns. As is evident from this list, many of the subjects of active experimental interest in the field of the biology of sex are reviewed. The book should prove of interest and of value not only to biologists but to physicians as well, for only by comprehending the basic principles of the biology of sex can one hope to understand this complex function as it affects the human organism.

Food Charts: Foods As Sources of the Dietary Essentials prepared by a joint committee of the Council on Foods and Nutrition of the American Medical Association and of the Foods and Nutrition Board of the National Research Council. Paper. Price, 10 cents.* 20 pages. Chicago: American Medical Association, 1942.
*Quantity prices on request.

Current interest in nutrition is at a high level and the subject merits all the attention which it is receiving. Information about the composition of foods now is on a quantitative basis. A forceful presentation of some facts about foods as sources of the dietary essentials is provided by the present illustrated essay, which has been prepared by a joint committee of the Council on Foods and Nutrition of the American Medical Association and of the Food and Nutrition Board of the National Research Council. There are eight charts showing the contribution that individual foods may make with respect to the needs for protein, calcium, iron, vitamin A, thiamine, riboflavin, nicotinic acid, and ascorbic acid. A feature of these graphic presentations is that the values are presented in terms of the proportion of the daily requirements which are supplied by typical servings of each food. The requirements selected are the Recommended Daily Allowances of the Food and Nutrition Board of the National Research Council. In addition the booklet reproduces the table of Recommended Dietary Allowances and also provides the values of Minimum Dietary Requirements developed by the Food and Drug Administration for purposes of labeling special foods. This little essay thus provides considerable factual information about foods as sources of the dietary essentials.

When Doctors Are Rationed. By Dwight Anderson, Director of Public Relations, Medical Society of the State of New York, and Margaret Baylous, Therapist, Charleston General Hospital, Charleston, West Virginia. Price, $2.00. 255 pages. New York: Coward-McCann, Inc., 1942.

The growing concern over adequate medical care for the civilian population, recently emphasized—perhaps unduly—by the report of Senator Pepper's subcommittee on man power, makes the time ripe for such a sane, clear discussion of the problem by experts on medical public relations. Without shutting their eyes to the seriousness of the situation, Mr. Anderson and Miss Baylous tell what is being done to assure adequate medical care for the civilian population, as well as for the armed forces. Much good advice is given the layman as to how to conserve the energy of his medical advisers, without suffering for lack of medical attention. The authors tell of the achievements of the public health service; of the steps being taken to insure adequate medical service for communities made into boom towns by defense projects; of the increased activity of medical schools; and of the splendid work being done by women doctors. They advise the layman how to be a good patient; what to expect of his doctors; and, finally, how to choose his doctor.

Of special interest to North Carolinians is the statement—made more prominent by inclusion in Dr. Van Etten's foreword—that North Carolina is the only state in the union that enforces compulsory vaccination against diphtheria.

The only criticism of the book is that it was left with uncut edges. In these days of high pressure living, it is quite irritating to have to pause every few minutes to sever an adhesion between the leaves of a book as interesting as this.

Selected Questions and Answers. From the Queries and Minor Notes Department of the Journal of the American Medical Association. 478 pages. Price, $2.00. Chicago: American Medical Association Press, 1939.

This is a collection of selected questions and answers which appeared in the Department of Queries and Minor Notes of the **Journal of the American Medical Association** from 1937 through 1939. They are arranged by chapters according to subject matter and deal with numerous aspects of medicine which present themselves in every-day practice. The value of a book of this kind is that it includes discussions of many problems which are not dealt with in the usual textbook. The answers are, in general, concisely given and present the best available information on the subject, although an expert in a given field may find views which are open to question. In spite of this criticism the book should prove both interesting and informative to the practitioner and medical student.

Synopsis of Blood Diseases. By A Piney, M. D., M.R.C.P. London, Physician, St. Mary's Hospital for Women and Children. 120 pages. Price, $2.75. Philadelphia: The Blakiston Co., 1942.

This brief outline of hematology summarizes the more practical aspects of the subject and was written primarily for senior medical students and practitioners. All the commonly encountered disorders of the blood and blood forming organs are considered, with brief discussions of their symptoms, changes observed in the blood, pathology and treatment. Four colored plates, in which impressionistic drawings of blood and marrow cells are reproduced, are included. The present volume should prove a popular companion to the author's well known atlas reviewed elsewhere in this journal.

Contraception and Fertility in the Southern Appalachians. By Gilbert Wheeler Beebe, Ph.D., Research Associate, Milbank Memorial Fund. Price, $2.50. 286 pages, with 12 illustrations. Published for the National Committee on Maternal Health, Inc. by the Williams & Wilkins Co., Baltimore, 1942.

This is one of a series of volumes dealing with medical aspects of human fertility issued by the National Committee on Maternal Health. It attempts to inquire into the possibility of encouraging birth control in rural areas of low economic level and high fertility, and is based on a study of 1300 families in Logan County, West Virginia, with the addition of comparable findings in other areas of the Southern Appalachians. The results of the study show the need for a more diversified contraceptive service than is at present available. Those interested in this problem will find Dr. Beebe's monograph of interest from a practical medical as well as a sociological standpoint.

The Value of Health to a City. Two Lectures Delivered in 1873 by Max von Pettenkofer. Translated from the German, with an introduction, by Henry E. Sigerist. Price, $1.00. 52 pages. Baltimore: The Johns Hopkins Press, 1941.

Max von Pettenkofer, who was born in 1818 and died in the first year of the current century, was one of the founders of the modern science of nutrition and public health, and the first occupant of a chair in a department of hygiene. The lectures reprinted in the present book were delivered to arouse in the inhabitants of Munich an appreciation of the economic loss entailed in poor living conditions, and a desire to remedy them. Although delivered almost a half century ago, these lectures, like all truly classical works, are up-to-date in their appeal and convey the spirit of Pettenkofer's broad interest in public health and humanitarianism.

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Vitamin Films in Color

During the past year the three 16-mm. silent motion pictures in color, describing certain vitamin deficiency diseases, which were made available by Eli Lilly and Company, Indianapolis, for showing before medical groups under sponsorship of a physician, have been in continuous demand. One film deals with deficiency of thiamine chloride (beriberi), another with nicotinic acid deficiency (pellagra), and the third with ariboflavinosis. To meet increasingly frequent demands for the films, additional new prints have been placed in circulation and are now ready for loan. The major part of all films concerns the clinical picture presented by the patient with reference to treatment by diet and specific medication. They do not contain advertising of any description, nor is the name of Eli Lilly and Company mentioned.

The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a cooperative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

Army-Navy "E" Presented to Winthrop Chemical Company

Twin ceremonies on Thursday, December 17—one in Rensselaer, N. Y., and the other at the Hotel New Yorker in New York City—marked presentation of the Army-Navy "E" to Winthrop Chemical Company.

Principal speakers at both ceremonies were Brig. Gen. Charles Clark Hillman, chief of professional service of the Surgeon General's office of the War Department; Rear Admiral Charles S. Stephenson, head of the division of preventive medicine, Bureau of Medicine and Surgery, Navy Department; and Dr. Morris Fishbein, editor of the Journal of the American Medical Association.

Ceremonies began at 10:45 A. M. at the company's plant in Rensselaer, and more than 1,000 employees were expected to attend. The New York presentation was scheduled for 7 P. M., with a dinner for employees, at which Dr. Fishbein and Lowell Thomas spoke, beginning an hour later.

Winthrop is manufacturing many vital drugs for the Armed Forces, according to Dr. Theodore G. Klumpp, president. Among these is Atabrine, a synthetic substitute for quinine in the treatment of malaria. Winthrop's research, initiated at the outbreak of war in 1939, made possible the production of this anti-malarial entirely from materials of domestic origin, Dr. Klumpp said, and Atabrine is today being manufactured here in the United States at a rate which is 16,000 per cent above pre-war U. S. requirements.

The Army-Navy E flag was accepted for Winthrop's plant at Rensselaer by Dr. A. E. Sherndal, plant superintendent, who was responsible for the Atabrine research which freed the United States from dependence on foreign sources for supplies required in the production of Atabrine. In New York, Dr. Klumpp accepted the flag on behalf of the management.

Do not forget that of all the countless remedies, rest, alone, has stood the test of time. Gerald B. Webb, M.D.

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THE MODERN CONCEPT OF HYPERTENSION

Arthur Grollman, M. D., Ph. D.

Winston-Salem

The view that the kidney is the organ primarily involved in the pathogenesis of hypertension was expressed more than a century ago by Richard Bright[1], but until very recently this concept failed to receive general acceptance. It is only in recent years that it has been established experimentally on a firm basis. As in the case of many other diseases, an understanding of the nature of hypertension was delayed until it became possible to produce the condition in laboratory animals. As early as 1879, Grawitz and Israel[2] had induced an elevation in the blood pressure of dogs by partially ablating their kidneys. Subsequent workers utilized other procedures, such as ligation of the renal veins, partial nephrectomy, and exposure of the kidneys to the x-ray, in an attempt to induce hypertension. These methods, however, were too inconstant in their effects and entailed so much interference with renal excretory function as to cast doubt on the significance of the results.

The classical work of Goldblatt and his co-workers[3] in 1934 offered a readily reproducible method for inducing hypertension in the dog and demonstrated that the resulting disease resembled the so-called "essential" hypertension occurring in man, in that there was no accompanying interference with renal excretory function. The procedure used by Goldblatt of applying a silver clamp to the renal artery has served as a basis for many studies in laboratories throughout the world, which have contributed much to our understanding of hypertension.

The Experimental Induction of Hypertension

In addition to the procedure devised by Goldblatt several other methods have been described for inducing hypertension in laboratory animals, and these have been widely used, particularly in rodents, which are preferable to dogs for certain studies. Prior to Goldblatt's original publication Chanutin and Ferris[4] had induced hypertension in rats by subtotal nephrectomy. Page[5] demonstrated that the application of a cellophane capsule to the kidney offered a simple procedure for inducing hypertension in dogs, and a modification of this technique may be used with equal success in the rat[6]. More recently we have found that in the rat a ligature passed in the shape of a figure 8 over the poles of the kidneys is all that is necessary for inducing hypertension, and we have used this procedure in all our recent work.

The above described methods all involve some interference with the kidney and offer direct evidence that this organ is in some

From the Department of Medicine, The Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

Presented before the Annual Meeting of the Seaboard Medical Association, Wilson, N. C., December 3, 1942.

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3. Goldblatt, H.; Lynch, J.; Hanzal, R. F.; and Summerville, W. W.: Studies on Experimental Hypertension; Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia, J. Exper. Med. 59:347-379 (Mar.) 1934.
4. Chanutin, A. and Ferris, E. B., Jr.: Experimental Renal Insufficiency Produced by Partial Nephrectomy, Arch. Int. Med. 49:767-787 (May) 1932.
5. Page, I. H.: A Method for Producing Persistent Hypertension by Cellophane, Science, 89:273-274 (Mar. 24) 1939.
6. Grollman, A. and Williams, J. R.: Experimental Chronic Hypertension in the Rat, Am. J. M. Sc. 204:73-79 (July) 1942.

way related to the pathogenesis of hypertension, at least as it is seen in the experimental animal. However, other procedures which involve no direct attack upon the kidney are also effective in inducing hypertension, and these are of considerable theoretical interest in indicating the possibility that extra-renal factors may play a part in the causation of certain clinical forms of hypertension. The occurrence of hypertension in association with lesions of the central nervous system has been simulated by the injection of kaolin into the subarachnoid space. The presence of this foreign body apparently induces a sterile encephalitis which is responsible for the resultant hypertension[7]. The proprioceptive regulation of general vascular tonus is effected through reflexes, the receptors of which are situated in certain localized vascular areas such as the carotid sinus. Section of the aortic and sinus nerves to these areas results in hypertension[8]. Hypertension can also be induced by the injection of certain steroid bodies, such as calciferol[9], the sex hormones, or desoxycorticosterone[10]. The last mentioned observations may have significance in explaining the occurrence of hypertension in certain endocrine disorders such as Cushing's syndrome, in which abnormalities in steroid metabolism are known to occur.

The exact role of the kidney in the etiology of the hypertension induced by the neurogenic or endocrine disturbances just described has not been determined with certainty. It is possible, of course, that these may exert their influence through the kidney, but this fact has not been definitely established.

The Renal Pressor Mechanism

The fact that hypertension is often a concomitant of renal disease suggested to many early workers that the observed elevation in blood pressure was due to the liberation in the body of some pressor substance. As various pressor hormones were discovered (posterior pituitary hormone, epinephrine) these were considered as the agents responsible for the rise in blood pressure. However, except for the rare paraganglioma, in which an excessive secretion of epinephrine causes intermittent hypertension, there is no valid evidence implicating the endocrine organs in the more common forms of hypertension[11].

In 1890 Tigerstedt and Bergmann[12] demonstrated the pressor effects of crude extracts of kidney and suggested that these substances liberated by the diseased kidney were responsible for hypertension as it is observed clinically. Little attention was subsequently given to "renin", as Tigerstedt and Bergmann designated this renal pressor substance. In 1936, Harrison, Blalock and Mason[13] revived interest in renin and suggested that this substance was a product of the ischemic kidney and was the agent responsible for hypertension. This view has been almost universally accepted, although as we shall see later, subsequent work has necessitated much revision in the simple concept that a pressor substance is responsible for the rise in blood pressure. Renal extracts manifesting a renin-like action lose their activity on purification, but regain it when mixed with a globulin-containing fraction of blood serum. Page and his collaborators[14] in this country and Houssay and his coworkers[15] in Buenos Aires have demonstrated this behavior of renin. They designate as renin the substance formed by the kidney, and as angiotonin or hypertensin, the actual pressor substance formed by the enzymic action of renin on a globulin present in blood serum (renin activator or hypertensinogen).

The view that hypertension results from the pressor effect of some substance elaborated by the kidney is enticing because of its very simplicity, and has been widely accepted. However, there are many experimental facts which are opposed to this view and which indicate that the occurrence of hypertension involves a much more compli-

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13. Harrison, T. R.; Blalock, A.; and Mason, M. F.: Effects on Blood Pressure of Injection of Kidney Extracts of Dogs with Renal Hypertension. Proc. Soc. Exper. Biol. and Med. 35:49-50, Oct., 1936.
14. Page, I. H.: Studies on the Mechanism of Arterial Hypertension. J.A.M.A. 120:757-762 (Nov. 7) 1942.
15. Houssay, B. A., and Braun-Menendez, E.: Renin in Experimental Hypertension. Brit. M. J. 2:179-181 (Aug. 15) 1942.

cated mechanism than the existence of a simple renal pressor factor.

The Anti-Pressor Mechanism

Several observations made during the early work on hypertension suggested the probability that the kidney might be responsible for the production of a factor which was absent or was produced in insufficient amount in hypertension. It was believed that this substance antagonized the "pressor" mechanism, and hence the hypothetical substance was designated as the anti-pressor factor. Extracts of kidney tissue were prepared and were found to be capable of reducing the blood pressure of animals rendered hypertensive and, in a few cases, that of patients suffering from hypertension[16]. Similar results were obtained by other observers[17].

The possibility of extracting from the kidney a substance capable of reducing the blood pressure in hypertension suggests that it is the absence of this normal secretion, or perhaps an imbalance between the amounts of pressor and anti-pressor substance which is the cause of hypertension. The latter view is held by most observers, but one can equally well explain the data at hand by the simple view that hypertension is a deficiency disease due to the failure of the kidney to elaborate an essential constituent, in the absence of which hypertension ensues.

If the last named view be accepted one would have to consider renin as merely a product of tissue destruction. In accord with this view is the fact that when autolysis is prevented, no renin[18] is detected in kidney extracts. Experiments on parabiotic rats[19], one of which is rendered hypertensive, also fail to reveal evidence for the existence of a circulating substance present in the blood stream in sufficient amount to raise the blood pressure. The fact that the blood pressure in rats rises following bilateral nephrectomy[20] (and hence after the removal of any possible source of a renal pressor mechanism) is also not explicable by the assumption that hypertension results from the presence of a renal pressor substance. In this connection it may be pointed out that although renin or angiotonin, when injected, simulates in many respects the hemodynamic state characteristic of hypertension as observed clinically, other substances (for example, paredrine) also do the same[21]. Moreover, renin still exerts its pressor effect after destruction of the spinal cord[22], an operation which causes a fall in blood pressure in the hypertensive animal.

Possible Factors Involved in the Pathogenesis of Hypertension

As is evident from the preceding discussion, the simple view that hypertension results from the elaboration of a precursor of a pressor substance by the kidney does not explain all the available experimental data. This is of considerable practical importance, for it demands a re-evaluation of earlier conclusions. Thus, the enthusiasm with which nephrectomy was performed several years ago has given way before the observed fact that this operation is not always followed by a sustained drop in blood pressure, but may even worsen the condition of the patient.

A subject which has elicited much discussion is the relation of renal ischemia to hypertension. In the experimental animal hypertension is induced by procedures which lead to ischemia of the kidney. It has, therefore, been inferred that a similar mechanism must always be the basis of the pathogenesis of hypertension in the human being, despite the evident fact that in many instances, particularly of so-called essential hypertension, there is no marked disturbance of the hemodynamic state of the kidney[23]. Attempts to read into simple deviations from normal renal tubular activity the existence of a sufficient abnormality to explain the development of hypertension are far from convincing.

The term hypertension as used to define a clinical entity is limited to those instances in which there is an elevation of both systolic

16. Grollman, A.; Williams, J. R.; and Harrison, T. R.: Effects of Renal Extract on Hypertension, Bull. N. Y. Acad. Med. 18:190-199 (March) 1942.
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23. Steinitz, K.: Zur Frage der Nierendurchblutung bei Normalen, Hypertonikern und Nierenkranken, Acta med. Scandinav. 109:95-114, 1941.

and diastolic pressures. This excludes such conditions as arteriosclerosis, hyperthyroidism, and aortic insufficiency, in which the elevation is limited to the systolic pressure. If we look upon hypertension as a disease entity due to failure of certain cells in the kidney to produce an essential incretory product, obvious renal injury or ischemia of the kidney need not be present in every patient with hypertension. As in the case of other organs a failure of the kidney due to a congenital heritable weakness will result in the disease as will failure due to direct injury such as occurs in nephritis, malformation, and other renal diseases. Congenital deficiency would account for those instances of essential hypertension in which renal blood flow and excretory function are normal. Further studies are desirable to determine the validity of this view.

Summary

The recent experimental work on hypertension is reviewed. The generally accepted notion that renal hypertension is due to the production of a pressor substance is shown to be indequate to explain all the available facts. An alternate theory, according to which the disease results from failure of the kidney to produce an essential incretory product, is shown to be more compatible with the known facts.

Peacetime Values From a War Technology.—In a world at war one gets the impression that all forces are solely for destruction. When war ends, the new technology will more quickly, efficiently and effectively convert the war effort to the pursuits of peace with an amazing speed. With the tremendous increase in research and development, the commercialization of processes has occurred which would have taken years under normal conditions to reach fruition. Out of the welter of the war effort, values will flow that will increase man's effective span of life with greater satisfaction for living.

Science has already prolonged and saved man's life through germ-killing chemicals, new anesthetics and synthetic vitamins. Through scientific and technical research our food supply has increased in quantity and quality. Synthetic textiles have provided us with more beautiful, durable and sanitary clothing. Plastics will revolutionize the building arts, for the trend is to supplant many house-building and house-furnishing materials with plastics as soon as they can be released for civilian use. Plastics together with new and more efficient fuels will also play a dominant part in our new transportation systems. — Dr. Gustav Egloff: Peacetime Values From a War Technology, Science 97:101 (Jan. 29) 1943.

ROENTGEN THERAPY IN THE TREATMENT OF CERTAIN INFLAMMATORY CONDITIONS

ROBERT J. REEVES, M. D.
DURHAM

Numerous writers have discussed the use of low voltage x-ray in the treatment of non-malignant inflammatory diseases. The great variety of conditions in which roentgen therapy has been advocated by some and exploited by others has caused definite and often justified skepticism regarding its use among the medical profession. This has at times kept this useful agent from receiving the attention which it deserves.

It is difficult for physicians to understand how an agent which has been used so largely to treat malignant tumors can also be an effective means of treating acute or chronic inflammation. Some doctors are afraid to take advantage of this method of treatment, because of the deleterious changes which are occasionally observed in patients who have been improperly treated.

Hodges[1] has been a strong advocate of this method of treatment for almost twenty years. His method of treating carbuncles, cellulitis, erysipelas, parotitis and other conditions is still in vogue and has received a wide following.

Desjardins[2] recently published a review of the literature and discussed the theories of tissue reaction to the rays. This reaction is discussed in greater detail by Ellinger in his book on radiation therapy[3].

The action of roentgen rays upon inflammatory tissue has been the subject of much discussion. Any attempt to explain this action must depend on the phase of the inflammatory process. The rays do not act directly on the bacteria but indirectly within the tissues. The superficial wall of the inflammation is broken down and the infection extends to the surface instead of spreading throughout the tissues. All that is really

From the Department of Radiology, Duke University School of Medicine, Durham.

Read before the Seaboard Medical Association, Wilson, North Carolina, December 3, 1942.

1. Hodges, F. M.: Roentgen Therapy of Certain Infections. Am. J. Roentgenol. 35:145-155 (Feb.) 1936.
2. Desjardins, A. U.: The Action of Roentgen Rays on Inflammatory Conditions. Radiology, 38:274-280 (March) 1942.
3. Ellinger, Frederick: Biologic Fundamentals of Radiation Therapy. New York, Interscience Publishers, 1941.

known about inflammation is some of the major outward manifestations which can be readily observed. It is thought that the acute inflammations respond more readily to roentgen treatment because there is an acute congestion of the infected area with leukocytes and lymphocytes. The blood vessels are contracted and an increasing quantity of plasma seeps through the walls of the vessels into surrounding tissues. The polymorphonuclear leukocytes migrating into the tissues are radio-sensitive, and as they are broken down by x-ray there is an indirect action upon bacteria. In the chronic infections one finds considerable fibrin and fibrosis and often a lesser number of leukocytes. These subacute and chronic infections respond poorly to treatment and must be given smaller doses of x-ray over a longer period of time. It is also a known fact that in inflammations caused by streptococci, leukocytic infiltration is less pronounced than in those caused by staphylococci. These inflammations do not respond so well to a single treatment. We are familiar with the x-ray treatment of acne and furunculosis. It is believed that the reactions of other infections to treatment are essentially the same.

Pendergrass and Hodes[4] recently reported on the use of x-ray in some of the more common infections, but I would like to discuss treatment of a few of the conditions in which roentgen therapy is seldom mentioned.

Herpes zoster in the acute stage responds very favorably to x-ray. The Cornell Medical Center recently reported a series of 35 cases so treated, with favorable results. One was in a patient with trigeminal neuralgia. For years medical authorities have believed that herpes zoster should be treated by absolute rest and supportive measures, and that after a few months, if the pain did not subside, roentgen therapy should be given. Our most striking case was one with involvement of four thoracic segments, with symptoms of only three days' duration. The patient was free of symptoms in less than three weeks.

Rheumatoid arthritis of the spine has always been a difficult problem. X-ray therapy has been tried for several years, but only last year, the orthopedist at the University of Michigan reported a series of acute cases which had responded favorably to treatment[5]. This infection starts usually in the sacro-iliac joint and ascends. Frequently there is very little evidence on the x-ray plate, but clinically there may be muscle spasm involving the muscles of the entire spine. The sedimentation rate is usually elevated and the Weltmann reaction is low. These cases usually respond readily to x-ray, as noted by their relief from pain and muscle spasm and the drop in the sedimentation rate. If the infection has advanced to the stage described by Marie and Struempell, little relief can be offered.

Another largely neglected field for roentgen therapy is in the treatment of the nasopharynx or the sinuses[6]. There are a large number of patients who do not respond to the usual nose and throat therapy. At the meeting of the Southern Medical Association in 1936[7], we reported a series of 500 cases of chronic lymphoid hyperplasia of the nasopharynx and pharynx. These cases were all referred by the otolaryngologist. All cases had been operated upon at least once. Usually there was a diffuse hyperplasia over the entire posterior pharynx, often extending up around the eustachian tubes, and sometimes causing a partial deafness. A series of four to six treatments are given at weekly intervals, then a month is allowed to elapse, and if necessary, a second series is given. Dr. Crowe of Baltimore advocates using radium suspended through the nose and pulled up into the region of the eustachian tubes.

Certain sinus infections respond to x-ray treatment. If it is used with the cooperation of the otolaryngologist, very good results can often be obtained.

Ganglions appearing on the dorsum of the wrist are often very annoying. A surgeon first reported a series of cases treated with roentgen therapy. We have followed the technique employed in his series and our results have been surprisingly good. The treatment consists of first aspirating the ganglion, then shielding it closely and giving 500 r of high voltage x-ray at monthly intervals. The treatment sets up a counter irritation, re-

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5. Smyth, C. J.: Freyberg, R. H.: and Lampe, Isadore: Roentgen Therapy for Rheumatoid Arthritis of the Spine, J.A.M.A., 117:826-831 (Sept. 6) 1941.

6. Reeves, Robert J.: Radiation Treatment of Hypertrophied Lymphoid Tissue of the Pharynx and Nasopharynx, Am. J. Roentgenol., 37:510-512 (April) 1937.

7. Eagle, Watt W. and Reeves, Robert J.: The Treatment of Lymphoid Hypertrophies and Infections of the Pharynx and Nasopharynx by Irradiation, South. M. J., 29:159-163 (Feb.) 1936.

sulting in adhesions and closing the ganglion. There seems to be no damage to the surrounding tissues.

Diphtheria carriers can be rendered negative very readily by irradiation of the nasopharynx. We have treated a series of 15 patients with positive throat cultures, and all were negative after two weeks.

Primary tuberculous cervical adenitis also responds well to small doses of x-ray, and the majority of cases can be cleared up[8]. It does not matter if the glands are caseous or draining. The glands usually do not break down if the dosage is low and if treatments are not given too often. The treatments should always be preceded by removing the tonsils if they are present.

Another group of cases responding to roentgen therapy are the mycotic infections of the skin, especially blastomycosis[9]. After the organism is isolated by smear or culture on Sabouraud's mixture, the patient is desensitized, if he is found to be sensitive to his infection. Roentgen therapy is given in conjunction with the systemic treatment.

Conclusion

We have attempted to stress the importance of considering roentgen therapy as an adjunct in the treatment of inflammations. The x-ray reacts on the outer leukocytic wall, causing the infection to break down and extend to the surface instead of spreading throughout the tissues. The roentgen technique is not stressed here, as that is a radiological problem.

8. Reeves, Robert J.: Roentgen Ray Treatment of Tuberculous Cervical Lymph Nodes, South. M. J. 26:358-360 (June) 1933.
9. Hemphill, J. E. and Noojin, Ray: North American Cutaneous Blastomycosis Treated With Superficial Roentgen Therapy, Am. J. Roentgenol. 48:643-650 (Nov.) 1942.

Man's struggle to survive is ever present. He has either vanquished or domesticated large animal life. Our present battle is to overcome the ravages of rats, insect life and bacteria; it would seem that the smaller the scale of life the more difficult is the problem of its extermination or control. Even the very nature of some of the smallest forms has presented man with some of his greatest difficulties of discovery and eradication by chemical or physical means. Great strides in this direction have been made, but the ultimate solution is still far off. Increased tempo in research and experimentation along many fronts will ultimately present the remedy, but with the vastly improved tools man is constantly providing for himself, the end is certain to be on the favorable side for mankind.—Dr. Gustav Egloff: Peacetime Values From a War Technology, Science 97:102 (Jan. 29) 1943.

THE RORSCHACH TEST

An Important Aid in the Personality Diagnosis

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The childish game of making faces, figures or scenes out of clouds or out of ink blots has a psychological significance which has long been recognized. In 1857 a German psychiatrist, Justinus Kerner[1], expressed the belief that a person's reactions to those ink blots have some psychological value and tell something about the observer. However, he thought that the ink blots had to produce certain responses, and he did not give sufficient consideration to the projection of the subject's ideas into the blots.

In 1895 Binet used ink blots in a more advanced way to test a person's imagination. This idea was taken up by the American psychologist, Whipple. He used standardized ink blots for the first time. Others became interested in this subject, among them Rorschach[2], a Swiss psychiatrist. He worked for ten years on the method, and published his experiences in his "Psychodiagnostik", which is still an important standard work, only recently translated into English[3]. Rorschach found that some of the ink blots he tried evoked responses much more easily than did others. Symmetrical blots can be produced by letting a few drops of ink fall on a sheet of paper, then folding and pressing it together. However, most of these blots would not be stimulating enough to elicit satisfactory results. The Rorschach ink blots on the test cards have to fulfill certain "Gestalt" qualities; and the forms have to be comparatively simple, since complicated pictures make the scoring of all test factors much more intricate. The distribution of the blots within the space of the card must also be according to certain psychological laws. If this is not the case the blots lack the figurative element and they are seen

From the Department of Psychiatry, Duke University School of Medicine, Durham.
Read before the psychiatric staff of Lawson General Hospital, Atlanta, Georgia, and the medical students of Emory University.

1. Klopfer, B., and Kelley, D.Mc., The Rorschach Technique, World Book Comp., 1942.
2. Rorschach, H.: Psychodiagnostik, Bern, H. Huber, 1937.
3. Rorschach, H.: Psychodiagnostics, Translated by P. Lemkau and B. Kronenberg, Berne (H. Huber), 1942.

only as simple ink blots. Blots must be almost completely symmetrical, for very definite reasons: (1) asymmetrical pictures are rejected by a good many people, and (2) symmetry offers equal opportunities to right and left handed individuals.

Theory

In the Rorschach test the subject has no idea what he is tested for and what is expected from him. Therefore, the conscious or unconscious desire of the individual to react in a certain way is eliminated and cannot influence the results of the test. The patient's personality projects its own properties in his response. If we used true pictures of objects or photographs of scenes the opportunities for responses would be greatly limited by reality. At the utmost such a procedure might give an approximate idea of one's imagination or free association. The Rorschach test is not a test of imagination, as it is frequently thought to be. In order to form certain conceptions we depend on memories and traces of previously formed ideas. New experiences —which the test situation represents—elicit those previously formed conceptions and memories, and produce a *certain* response characteristic for the individual. Therefore, the interpretation of the ink blots will depend first upon the memory records of the individual, and secondly upon his selection from his store of memories. Pathological processes will greatly influence either one or both of these two factors. It is significant whether one is stimulated by the whole blot or selects a tiny detail along the edges of the blot. Of course, one single answer is of no significance in itself but only in connection with all the others.

Administration

The administration of the test is comparatively simple. After a short introduction the card is shown to the subject and he is asked what it might be. All responses are recorded. In order to find out the real organization of the subject's personality the test situation is made as comfortable as possible so that his inhibitions will be reduced to a minimum. Only under the most favorable conditions can we expect to obtain a fairly true picture of the personality. During the preparation of the subject for the test any remark which might influence or distort the patient's trend of thought is avoided. After the "performance proper", as the first showing of the cards is called by Rorschach workers, the individual is asked for more details concerning the responses so that the score may be as complete as possible.

Evaluation of Responses

There are three principal factors to be considered in evaluating a response.

1. The *location* of the response, meaning which part of the card is used: The whole blot might be used (symbol W), or a large detail of the blot (D), or a very small detail which the average individual would ignore or overlook. At times the white space (or background) becomes of importance and is used as stimulus; this could be considered as a reversal of the usual mechanism.
2. The *determinant*, meaning in what way the response is organized: whether only form elements are considered, whether movements are seen in the cards, and whether elements of color or texture are used.
3. The *content* of the response: whether the subject sees the blot as an animal, a human being, a part of anatomy, or some other object.

After all responses are properly scored, we attempt to evaluate the predominant characteristics in the subject's responses as a whole.

By means of the Rorschach test we expect to analyze the total personality structure. From our daily contacts with an individual we know in what way he reacts to a given situation. But is this reaction a natural expression of this person's basic personality? Is a certain extravert's adjustment genuine or enforced? What is a subject's "personality reserve" and what can we expect in situations different from the ordinary? How much inner tension might pile up behind a front of enforced extraversion or withdrawal from the usual environment?

In the Rorschach test reaction to color in the cards is the most important indicator of emotional life. The penetrating force of the emotions will express itself adequately in the Rorschach test, and we may draw very definite conclusions as to the state of the subject's emotions from smooth adaptability to uncontrolled impulsiveness. It is well known that colors have a definite emotional

appeal. This knowledge is used, for instance, in decorating rooms. It is assumed that a red longitudinal stripe along the wall will speed up production on the assembly line. For our purpose it might be interesting to know that in primitive man and in newborn children the sensitivity for green and blue is reduced, and the color red has a peculiarly strong appeal among such groups. In the Rorschach test the response of certain neurotics to these colors is significantly similar. The more the color element outweighs the form factor, the stronger can we expect emotional reactions to be. Practical experience confirms this. Pure color responses are most frequently found in demented epileptics, in patients with certain organic brain damages, and in schizophrenics — types which are known for their uncontrolled emotional outbursts.

If the form of the blot is used mainly to formulate a response and its color plays only a secondary role, it is probable that the intellectual functions—expressed by the form of the blot—have a satisfactory control over the emotions, expressed by color; in other words the individual attempts to adapt himself emotionally to stimuli offered by his environment.

The greatest percentage of interpretations are based on the shape or form of the ink blot. All other properties of the blot, such as color and shading, are completely disregarded in this type of answer. This response has been found indicative of intellectual control, particularly if the qualities of the blot are good. Normally, 40-50 per cent of all responses are form answers (symbol F). In cases with an F per cent higher than 50 the intellectual control becomes less flexible and rigidity develops. Similarly, the control is loose when the F per cent is very low—20 per cent or less—as it is in some schizophrenics. A great discrepancy in the form quality of the blots within the same test is significant, indicating a schizophrenic thinking disorder.

If an individual adds kinesthetic or movement elements to the form concept we deal with the so-called movement responses. In such a case the individual imagines the object seen in motion. It is important to differentiate whether a human figure, an animal or an inanimate object is seen moving. In order to perceive a human figure in motion certain creative abilities are necessary. Rorschach thought that active individuals striving for recognition see more extensor movements and that in passive personalities with neurotic inhibitions flexor movements are more noticeable. An example of the former would be a dancer erect in passionate whirl; of the latter, an old woman bent by the burden of her years. Neurotic inhibitions, alcoholization, epileptoid tendencies, manic and depressed conditions decrease the free use of creative abilities and thus reduce the number of movement responses (M); the *mature* form of productivity is reduced and movement is projected into more primitive patterns such as animals. Children and neurotics show such an increase of animal movements over human movements. Movement upon inanimate objects expresses tension within the personality development.

Frequently, shading effects are interpreted by maladjusted personalities as clouds of smoke. This state of fogginess—symbolic of the individual's inner life—is a projection of his anxiety. This might be expressed in its primitive form as already mentioned — clouds, smoke—, or it can be sublimated into higher psychological complex performances. In that case it is combined with form elements and the blot is enlivened into a three dimensional picture—for example, a landscape seen from an airplane.

Of equal importance with the single test factors is their relation to each other—as the relation of color to movement. As already mentioned, color indicates emotional expression and movement signifies inner creative ability. Therefore, it is understandable that the more color responses an individual shows the more this individual depends on an emotional relation to his environment. This is the case in the so-called extraverted type. Introverted or introspective personalities depend more on their own creative abilities; we have to expect to find fewer factors expressing emotional feelings among that group. In other words extraverted types find color stimulating: they will show more answers in the color cards and they will have more color than movement responses. Introverts present an opposite relation.

Application

From this comparatively short discussion you will realize the wide application of the Rorschach test. It can be utilized in all fields of normal and abnormal psychology, since it

gives us a complete picture of the individual's personality make-up.

In normal psychology the determination of intelligence is of great importance. The conventional types of intelligence fests in use give us the approximate mental age. By means of the Rorschach test we can not only estimate the mental age but also determine how this intelligence is used: whether the individual is capable of original thought and free creation or is prone to make reproductive use of the ideas of others: whether he is better in detail work or in comprehensive organization of intellectual material. This test will help us in vocational guidance by aiding in the selection of the occupation for which a subject is best fitted.

Of course, the widest application of the test lies in the psychiatric field. It enables us not only to analyze the psychotic personality structure but also to detect early psychotic manifestations, at times even before they become clinically evident. This is of great practical importance in spotting cases of early schizophrenics (particularly dementia praecox) since the modern shock therapies have proven to be three to four times more successful in early cases. Since early psychoses frequently take the form of neurotic symptoms we have to decide whether the picture presented is that of an early schizophrenia or is a true psychoneurosis. The Rorschach test will shorten the time of observation in such cases and will give important hints for further clinical examinations. Great variability in the quality of interpretation within the same test is ominous: as, for instance, keenly perceived forms in the same test with poor responses. The following response, given by a schizophrenic, is illustrative: "The liver of a solid living statesman." If we analyze this response we find a typical schizophrenic symptom—namely, condensation of ideas into the same concept. This blot might be seen as a human figure, which may be associated with the idea of something solid. On the other hand, the same blot might be interpreted as some kind of inner organ, as the liver, for instance. This schizophrenic had both ideas and contaminated one with the other by using both in the same response: "The liver of a solid living statesman."

Another important schizophrenic sign is the use merely of the position of the blot without any consideration of its form or of any of its other qualities. This has probably the same psychogenetic mechanism as the symbolism of the schizophrenic. Of course, there are many other schizophrenic Rorschach signs.

Subjects with neurotic conditions show an increase in the percentage of pure form answers, indicating a rigidity in thinking; a large number of anxiety factors; and a reduction in the reaction to color stimuli. The underlying psychogenetic complex expresses itself at times in unusual original responses to the blot; a mechanism similar to psychoanalytical symbolism might explain this type of reaction. Rorschach writes in his monograph[12]: "the . . . interpretations are symbols corresponding to dream symbols, meaning something different in the unconscious but they indicate the strong affective force of the latent content." This is particularly pronounced in the color responses, but might be applied to the whole test procedure.

Manic and depressive conditions give the test their specific reactions, as do epilepsy and organic brain conditions. Of course, we can not diagnose the exact type of organic brain affection, but the Rorschach test indicates general organic dysfunction of the brain in contrast to psychotic or neurotic conditions.

The value of the Rorschach test in this connection might be illustrated by a case which came to our attention lately. A 19 year old boy was hit by a ladder when he was out with the State Guard fighting fire. A few weeks later he developed signs suggestive of organic damage. such as dizziness, headaches, complaints of misjudging distances, and temporary aphasic disturbances; those symptoms were accompanied by very marked personality changes—increased irritability and impulsiveness, a tendency to depression, and carelessness about his personal appearance. In this case it was very important to decide whether or not those symptoms were a result of the injury received, since the State would be liable for any disability caused by the accident. The Rorschach test revealed a neurosis, in contrast to the first clinical impression. Further elaborate laboratory tests (electroencephalography, pneumoencephalography) and spinal fluid examination excluded organic damage. Additional clinical examination showed finally that the patient had fallen in love shortly before the behavior changes became

noticeable and that his parents opposed the affair. The resulting repression produced deceiving symptoms. The State and the public were saved a substantial amount of money.

In these days of national emergency the Rorschach test deserves a definite place. Highly mechanized warfare makes demands on the individual unknown up to now. Everyone has to be carefully selected for the job he is doing; everyone should be trained for the place he is best fitted for, emotionally and intellectually. Since the Rorschach test has proven an important aid in analyzing the personality as a whole, its use will be of great value in this new field of applied psychology. The European nations have long recognized its value and have been using the test along several lines, chiefly to select proper personnel for specialized purposes and prevent the induction of unfit personalities into military service. This test is of particular value in borderline cases. In such cases only a prolonged and costly period of observation might enable us to weed out the undesirable man. The Rorschach test, in collaboration with the clinical findings, would save a great deal of effort, time and expense. The help in differential diagnosis offered by the test is just as important in military as in civilian psychology, since the consequences are even more far reaching and concern not only the individual but the whole country.

With the present emphasis on air power the selection of potential pilots is of great importance. There are already several other tests in use which give an idea about the reaction time, form perception, and selective ability of the candidate under different psychological and physiological conditions. The Rorschach test will contribute by informing us about the emotional adjustment and impulsiveness of the candidate, about the different factors of intelligence, control, etc. A person subject to anxiety reactions will not be very reliable in the air; and a candidate with marked inhibitions and a rigid personality make-up might be too slow in making decisions, thus endangering himself, others, and valuable material. In the last war over 80 per cent of planes were lost *not* in actual combat and *not* because of failure in construction. This suggests that personnel difficulties were probably the reason. To avoid such high losses in this war we have to make a better selection of pilots. Experience has shown that "isolated measures" to detect "simple abilities are of little help in analyzing the personality as a whole."[4] Many of the personality tests take the form of leading questions, and the candidate knows what is expected from him; in answering the questions he is guided, consciously or unconsciously, by the desire to pass the test. The Rorschach test offers "no artificial personality ideal to which he can attempt an approximation . . . indications of neurotic behavior or emotional instability manifest themselves in ways quite beyond his control and remotest knowledge." The most useful purpose of the test may be the determination "of the degree of emotional reactivity and its control. It is obvious that a pilot must not be overwhelmed by fear or anger in a stressful situation—despite however excellent his somatic and psychological status —he will then be unable to fully use his carefully acquired training and to respond in accordance with it. The same man would have a very high score in a quiet room or in the Link Trainer."[4] According to statistics 90 per cent of the failures to complete courses in military aviation are due to emotional maladjustment.

4. Bigelow, R. B.: The Evaluation of Aptitude for Flight Training: The Rorschach Method as a Possible Aid, J. Aviation Med. 11:202-209 (Dec.) 1940.

Synthetic Rubber. You may well ask the question: Is synthetic rubber equal to the natural? One may say, the synthetic product is at least equivalent to the natural, but as of to-day it does not duplicate it, nor is it essential to duplicate nature's product, for the chemist's goal is to produce rubber with far superior properties to the natural. It has already shown far superior properties from the standpoint of gasoline, oil and chemical resistance. The synthetic product has greater wearing properties, and does not deteriorate readily in sunlight and air.

A number of trucks and motor cars using synthetic rubber have gone over 35,000 miles, and one may reasonably expect at least 100,000 miles with the amount of research going on in the laboratories of the United States. The greater general strength of a synthetic tire means less driving hazards and better road gripping. The latter property has been thoroughly tested on wet and muddy roads. Hill tests made with a number of trucks on a muddy road showed that the synthetic-tired vehicle had very little side-slipping, while the natural-tired vehicle slipped all over the road. Taxicab drivers advise that they all feel far safer in driving in mud or on wet city streets when their cabs are tired with synthetic rubber.—Dr. Gustav Egloff: Peacetime Values From a War Technology, Science 97:106 (Jan. 29) 1943.

NICOTINIC ACID (NIACIN) IN THE TREATMENT OF VINCENT'S INFECTION

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In the *Lancet* for July 13, 1940, J. D. King[1] reported the successful treatment of 4 cases of Vincent's disease by nicotinic acid —recently renamed "niacin" by the Council on Foods and Nutrition. King based his treatment upon the observation that mouth lesions yielding the organisms found in Vincent's infections were common in pellagra, and that they cleared up promptly under nicotinic acid. He reasoned that Vincent's disease was either an early manifestation of pellagra or was due to a vitamin deficiency. While his theory is open to question, his results are convincing.

For more than a year I have been using, with great satisfaction, niacin in the treatment of Vincent's infections of the gums and throat. The dose I usually employ, which is smaller than King's, is, for adults, 25 to 50 mg. three times a day; for children, 10 mg. or more according to age. The most spectacular results have been in the acute cases. A typical case report is that of a 17 year old girl who had ulcers on her pharynx (the tonsils had been removed), enlarged cervical lymph nodes, and a temperature of 103 F. A smear showed numerous Vincent's organisms. Niacin, 25 mg. three times a day, was prescribed. Within forty-eight hours the temperature was normal and the ulcers had almost disappeared. A smear taken on the fifth day was negative.

Several dentists who have tried this treatment have found it effective. Dr. R. E. Spoon of Winston-Salem has found it most useful in the acute cases of gum involvement, but also helpful in chronic cases in conjunction with local treatment. He has observed that its use keeps the mouth cleaner, and apparently greatly retards tartar formation. In pyorrhea he has found it of decided benefit, even when Vincent's organisms are not present. In at least one case he thinks it enabled him to save the patient's teeth.

Incidentally, Dr. Spoon and other dentists have found Vincent's infections much more prevalent in summer than in winter. The explanation may be found in the increased consumption of soda fountain drinks, which only too often are served in unsterilized glasses. It is interesting that Black[2] has recently demonstrated to his own satisfaction that Vincent's stomatitis is caused by herpes simplex—the ordinary fever blister. As a clinching argument he cites the fact that both Vincent's disease and herpes are more prevalent in the summer months. More recently another writer has argued that Vincent's stomatitis is not due to any organism, but solely to a vitamin deficiency. The object of this brief paper, however, is "not to reason why", but merely to say that niacin is usually effective in the treatment of Vincent's infections.

Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Charlotte, May 12, 1942.

1. King, J. D.: Vincent's Disease Treated With Nicotinic Acid, Lancet, 2:32-35 (July 13) 1940.

2. Black, W. C.: The Etiology of Acute Infectious Gingivostomatitis (Vincent's Stomatitis), J. Pediat. 20:145-160 (Feb.) 1942.

ASHEVILLE-BUNCOMBE COUNTY GONORRHEAL CLINIC FOR WOMEN

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Gonorrhea is not a new venereal disease, but we have been so much concerned with syphilis that it has not received the attention it should have. Gonorrhea is said to be the most common communicable disease next to measles, and we must know how to diagnose and treat it if we are to control it.

Although the diagnosis and treatment of gonorrhea in women are different from those of the same disease in men, the fundamental principles are the same. We must have a knowledge of the selective living habits of the gonococcus and the manner in which it causes the disease by penetrating the surface of mucous membrane lined only by columnar epithelium. If the gonococcus does not get into the submucosa, there will be no disease. It does not live on the surface. This is the key whereby we must unlock the door to our diagnostic procedures. We must know not only the anatomical structure of the female, but the histological structure of the various mucous membranes, so that we may determine where to search for the gonococcus.

Gonorrhea in the male is an important

and painful disease, but in women the results may be far more tragic. If it spreads beyond the internal cervical os, causing salpingitis and peritonitis, gynecological surgery is often the only way to save the patient from complete invalidism. Although the area of mucous membrane which may be infected in women is much greater than that in men, the signs of onset of the disease may be very indefinite and the symptoms of its progress obscured. Unless the disease has gone beyond the natural barrier, the internal os, women are frequently unaware of their infection.

The combined Asheville and Buncombe County Venereal Disease Central Clinic has, since its start, treated gonorrhea; but not until the last of December, 1941, was a separate clinic for women set up. I am going to picture for you this clinic in action, not because it is unusual, but because I believe it is well planned and efficient. Our equipment is all necessary and well placed in order to save steps. Each member of the clinic staff knows her duties and performs them. This makes it possible to examine carefully as many as forty-three women in one evening's clinic.

Our gonorrheal clinic for women is held each Friday, starting at 6:30 p. m.. The attendance at each clinic varies from twenty-five to forty-three. It is staffed by a medical woman, three public health nurses, and a technician. One of the nurses interviews all new cases. One gets the patients into the room, on the examining table, and draped; labels smears; finds patients' records; cleans and sterilizes the instruments; and gives out medicine, when instructed to do so. The other nurse waits on the physician. The technician takes the doctor's dictation, given as each patient is examined and written at once on the record card, and plants the gonorrheal cultures immediately on chocolate agar media. The use of two examining tables makes it possible for the examinations to proceed with no loss of time.

The mode of procedure in a new patient is to inspect thoroughly the labia and vulva for any signs of a genital lesion. The index finger is then inserted in the vagina and pressure is made on the urethra to milk out any material which may be present in Skene's glands. A smear and culture are made from this. Next a speculum is placed in the vagina and careful inspection is made of the cervix, for 60 per cent of primary syphilitic lesions are here. The outside of the cervix is cleaned off with a cotton swab if much discharge is present. Then the mucous plug so often present in the cervix is expressed by slight pressure with the blades of the speculum. Following this a swab is inserted just inside the cervical canal and another smear and culture are made. Only one slide and one Petri dish are used for each patient. The speculum is removed and a bimanual examination is made. The examiner then classifies the case clinically as negative, doubtful or positive.

Treatment is started immediately if the diagnosis is positive; otherwise, the laboratory makes the decision. Our plan of treatment is the same as that used in many other clinics. The patient is given sulfathiazole tablets with directions to take two tablets after each meal and before retiring for five days. This treatment may be repeated or the tablets may be reduced to one four times a day. If there is a copious discharge, douches are prescribed: potassium permanganate, one tablet to one quart of water at night for mechanical cleansing. The patient returns each week for three weeks and then each month for three months, provided smears and cultures remain negative and clinical conditions are satisfactory. Then she is discharged. Serological tests are made just before discharge.

We are examining all women who are put in our jail. If they have any venereal disease they are treated for it and are rendered non-infectious before they are released.

Our clinic attendance is excellent, and I believe this is due to the fact that our attitude toward our patients is sympathetic. The purpose of the clinic is to treat this communicable disease. The source or contacts will be treated in our men's gonorrheal clinic if the women will give us this information. Instructions regarding the details of treatment and the precautions which must be taken is given by the nurse interviewer as this requires privacy and more time than can be given the patient in the examining room.

A statistical resume of the findings of the clinic follows:

January 1 — July 31, 1942

Patients examined	214
Patients with gonorrhea	138
Patients with both syphilis and gonorrhea	34

Patients with trichomoniasis	6
Clinically negative	75
Clinically positive	119
Clinically doubtful	20
Smears	
positive	46
negative	168
Cultures	
positive	58
negative	156

It is gratifying that more women are seeking our aid in diagnosis and treatment. The January (1942) report from the Central Tabulating Unit in Raleigh showed 10 new cases of gonorrhea in women treated in our clinic, with a total of 16 active cases for the month. In June 21 new cases were reported and 71 active cases received treatment during the month. This gives an idea of the growth of the clinic.

Summary

A knowledge of both the anatomical and the histological structure of women and of the living habits of the gonococcus is necessary to diagnose gonorrhea. A doctor with a large, dry cotton swab, diligently mopping off the outside of a swollen urethra or making a tour of the vagina with a similar instrument and then expecting a laboratory to find gonococci in a smear or culture made in this manner is, indeed, an ignorant optimist.

A gonorrheal clinic for women has been described in detail, with a statistical resume of the findings for the first six months. The growth of the clinic during six months is indicative of the need for it, and the regular attendance of most patients makes us feel that the personnel has the right manner and attitude in handling patients.

Cause of Recurrent Peptic Ulcer.—In their paper dealing with 1500 cases of recurrent peptic ulcer, Brown and Dolkart (J.A.M.A. 113:276, July, 1939) concluded that "functional nervousness including fatigue and anxiety, was by far the greatest detectable cause of recurrence," and in many cases that the same causes might be responsible for the original ulcer. They say, "treat first the patient, second the bowel, and last the ulcer." Certainly most physicians agree with these conclusions. Too often, however, we have not recognized the role played by fatigue in the persistence of pylorospasm, to take one complication, in the presence of ulcer. Frightened by nasal tubes and other paraphernalia in hospital, without being given an opportunity to understand the role played by fear in producing gastric retention, the result may lead to gastric resection instead of alleviation through relatively simple procedures dealing with man's understanding of man.' —Arlie V. Bock: Fatigue, Tr. and Studies Coll. Physicians Philadelphia 10:79 (June) 1942.

THE SIGNIFICANCE OF THE NASOPHARYNX

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The nasopharynx is the top part of the throat; it is anterior to the first vertebra and is a part of the base of the occipital bone, posterior to the nose, below the body of the sphenoid bone; it extends down to the level of the palate.

The pharynx is a tube to conduct air and food. The nasopharynx conducts air, but it has muscles essential for swallowing. There are the three lifting muscles: the pharyngopalatinus, the stylopharyngeus and the salpingopharyngeus. These muscles are inserted in the region of the thyroid cartilage and elevate the pharynx in the first act of swallowing. The constrictor muscles of the pharynx force the food down the throat, and the superior constrictor is located in the nasopharynx. Overlying these muscles is a mucous membrane, containing mostly ciliated squamous epithelium with many goblet cells and some racemose mucous glands. Within the deeper structure of the mucosa are found many lymphoid masses which drain into the deep cervical glands.

In the nasopharynx we find a few very important structures. The nasopharynx is small, so that it is possible to visualize each of these parts. Unfortunately, although this is one of the few areas of the human body that can be seen in its entirety, it is almost universally neglected. The nasopharyngoscope gives perfect visualization of this organ, and, when necessary, can be used on nearly all patients (the very young being excepted). Those in which this instrument cannot be passed usually have a badly formed nasal septum; in these one could easily begin proper treatment with a submucous resection. Mirror examination should be done when possible, but the gag reflex does not permit this to be done routinely. The finger could also be used, but is not a satisfactory method because of its discomfort and because one must do much of the examination with the finger nail.

In examining the nasopharynx one should look for: (1) the posterior choanae, or open-

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ings of the nasal fossae into the area; (2) the adenoids, an abundant mass of lymphoid tissue; (3) the pharyngeal bursa (if this is present it is usually found in adults and is located in the center of the adenoid area; it is probably caused by a cicatrization of the superficial lymphoid tissue with an accompanying degeneration of the deeper mucous glands; it results usually in a draining mucous cyst, often infected, and producing a postnasal drip); (4) Rosenmueller's fossa, a recess lateral and above the eustachian tube orifice (this could contain mucopus and other accumulations as well as adenoid tissue); (5) the Eustachian tubes; and (6) the lateral lymphoid folds, a collection of lymphoid ridges extending down the pharynx, behind the tonsils.

Each of these areas is significant. The posterior choanae may be occluded by polyps, fibromas, or hypertrophy of the posterior tips of the inferior turbinates. If these conditions are present, they can be corrected. Pathological conditions in this area cause nasal obstruction, with the consequent sinus and middle ear complications.

Adenoids are usually found in children, but may be present at any age. The largest mass I have ever seen was in a woman 53 years of age. The masses vary in size and location. They must be visualized before operation whenever possible. It seems to me that the removal of adenoids is usually carried out with the poorest technique of any operation I know of. In examinations of children who have had previous tonsillectomies and adenoidectomies, I frequently find excess adenoid tissue causing trouble. On reporting this, I am embarrassed by the mother's asking why the doctor did not remove the adenoids at the previous operation. My answer must be that I do not know whether there is a secondary growth or an incomplete removal. Thus far, in my own cases, adenoids that are still present following operation are the result of incomplete removal. For these cases I advise irradiation immediately, and the results are usually good. I have found the baby curette a valuable aid in my operative technique. It is so small that it will fit well into any area of the nasopharynx.

Adenoids are a frequent source of trouble. They cause nasal obstruction; they are often a factor in postnasal drainage; they play havoc with the middle ear; and when present in adults they may be a focus of infection producing systemic symptoms. Adenoids can be removed easily under general anesthesia, or under local anesthesia injected through the curved tonsillar needle. Patients report that the operation under local anesthesia is not painful. In operating I always have the patient's head well back and use the suction machine.

The pharyngeal bursa, also known as Thornwaldt's disease or Thornwaldt's bursa, is not a true bursa. There are various theories as to the origin of this structure. Regardless of its etiology, however, the mass can be removed as though it were adenoids.

Rosenmueller's fossa is a normal recess. If the recess is partly occluded, infected or invaded by lymphoid tissue, this condition can be corrected with the curette.

The openings of the eustachian tubes must be unobstructed. If they are bathed in mucopus or are in contact with adenoid tissue, there will be middle ear disease. This may mean loss of hearing or possibly mastoiditis. Adenoids must be removed. On one occasion a 9 months old baby was brought to me with a suppurative otitis media of seven months' duration; local treatment by several physicians had not helped. I thought a mastoidectomy would probably be necessary, but I was delighted to find that a simple adenoidectomy produced a dry ear in forty-eight hours. One should examine carefully the lymphoid tissue about the tube; sometimes it is located in the tube and this may require irradiation. The effects of irradiation should always be followed up.

Lateral lymphoid folds may be partially removed surgically or by irradiation or by both methods. In my experience this area of the nasopharynx causes little trouble, if the other regions are normal.

Just before writing this paper I reviewed my last 50 tonsillectomies in adults. Of these 50 patients 13 had adenoids. There were 24 patients in the age group 15-25, and 10 of these had adenoids. In the age group 25-35 there were 15 patients, 2 with adenoids. In the age group 35-55, there were 11 patients, 1 with adenoids.

Adenoids can be present at any age, and may cause much trouble. I make a plea for the simple examination of the nasopharynx. The entire area can be visualized. The correction of the defects found will do much to eliminate respiratory infections and

middle ear disease, which is often accompanied by loss of hearing. Rather frequently a focus of infection may be found and occasionally, though not often, a routine examination will reveal a carcinoma, previously quiet, but deadly in its uninterrupted growth.

CEREBRAL PALSY AND THE PEDIATRICIAN

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Early Symptoms, Diagnosis and Etiology

In most instances the early diagnosis of cerebral palsy is the responsibility of the pediatrician. Much has been learned concerning the central nervous system lesions which produce the motor disturbances of cerebral palsy.

Cerebral palsies due to birth injuries should be differentiated from congenital cerebral palsies if possible. Birth injuries tend to affect some parts of the body more than others, whereas in congenital cerebral palsy the motor condition is more regularly distributed throughout the affected child. The abnormality here is thought to be present in the germ plasm during the process of development.

There is no agreement as to the anatomical residua of cerebral birth injuries if the child survives. From the studies of Capon[1] one concludes that the hemorrhage occurs almost always in the meninges rather than in the substance of the brain. The brain, however, may be injured as a result of compression by a large hematoma. If the bleeding is in the cristae at the base, the blood usually is diffused throughout the subarachnoid spaces without local injury; but if the hemorrhage occurs at the vertex where the sulci are restricted, compression and softening of the cortex is not common. Blood in the subdural space is not easily absorbed, but in the subarachnoid space there is greater opportunity for its absorption.

From the Cerebral Palsy Unit, Divisions of Orthopedics and Pediatrics, Duke Hospital, Durham.

1. Capon, N. B.: Intracranial Traumata in the New Born, J. Obst. and Gynec. British Empire 29:572-590, 1922.

Studies made by Fleming[2] and Roberts[3] show that less than 15 per cent of the infants with definite signs of cerebral birth injury live, and that those who survive are apt to be defective in later life. When the spinal puncture discloses blood-stained fluid, but clinical signs of birth trauma are absent, the prognosis is apparently good.

Early clinical signs of cerebral birth injury are important. If the injury has caused large intracranial hemorrhages, the child is likely to be stillborn. If less severe injuries are present, the child may be born alive but deeply asphyxiated. In most cases signs of intracranial hemorrhage appear within a day or so after birth, but they may be delayed until after the first week. In pallid asphyxia which occurs immediately after brith, the baby is pale rather than blue. There may be flaccidity rather than spasticity. Frequently it is impossible to induce respiration, or respirations when finally initiated may be feeble, shallow and intermittent. The fontanels are soft. Crothers[4] believes that pallid asphyxia indicates hemorrhage into the posterior fossa with injury of the medulla. Munro[5] regards it as surgical shock. Both these factors undoubtedly play important roles.

The most common clinical picture is one of recurrent cyanosis (case 5). Respiration is disturbed, being slow or irregular. When artificial oxygen is supplied, periods of apnea may occur (case 9) and the lungs may not expand properly. The child cries feebly or not at all. In most cases the child is rigid, especially on one side. The head is usually retracted and the hands clenched. An apathetic or stuporous condition exists. Local twitching of muscles occurs commonly and may persist for hours in irregular form. The fontanels are usually bulging and tense from intracranial pressure. The spinal fluid findings may be most revealing. If the blood has been in the subarachnoid space for some time, the following changes occur:

a. Supernatant fluid after centrifugation will be yellow or orange and will give positive benzidine tests.

2. Fleming, G. B.: Paper on Recognition and Treatment of Birth Injuries in Newly Born, Brit. M. J. 2:481-485 (Sept. 12) 1931.
3. Roberts, M. H.: The Spinal Fluid in the New-Born: with Especial Reference to Intracranial Hemorrhage, J. A. M. A. 85:500-503 (Aug. 15) 1925.
4. Crothers, B.: Changes of Pressure Inside the Fetal Craniovertebral Cavity, Surg., Gynec. and Obst. 37:790-801 (Dec.) 1923.
5. Munro, D.: Cranial and Intracranial Damages in the New Born, End Results. Study of 117 Cases, South. Surg. Tr. 40:393, 1927.

	Labor	*Early Symptoms*	*Diagnosis*	*Etiology*
Case 1.	13 hours. Head presentation, low forceps.	Deficient animation, difficulty in swallowing, exaggerated reflexes of right extremities.	Right hemiplegia	Probable birth injury
Case 2.	7 months pregnancy, breech presentation. Laceration of the sacro-coccygeal area which healed.	First seen at 15 months. Muscular tension, restlessness, general rigidity. Some exaggerated reflexes, with overflow present in the legs. Irregular temperature.	Spastic paraplegia. Fair prognosis.	Congenital
Case 3.	Foot presentation. Mother had convulsions a few hours before and after delivery.	Sluggishness, restlessness, with rigidity. Muscular twitchings at 6 months. Difficulty in nursing. Marked paralysis in arms, neck, tongue.	Severe athetosis in arms and neck. Fair prognosis.	Birth injury.
Case 4.	15 hours.	Periods of stiffness at 3 months. At 5 months slow in physical development. Hyperactive in all reflexes. Developed respiratory infection.	Spastic quadriplegia.	Congenital.
Case 5.	7 months pregnancy, 2 hours labor.	Weakness, cyanosis, rigidity, difficulty in swallowing at birth. Convulsion at 4 years. General tendency to diseases. Reflexes of lower torso hyperactive.	Congenital spastic diplegia. Fair prognosis.	Congenital.
Case 6.	36 hours labor, instruments used.	Deficient animation, difficulty in swallowing.	Tension tremor.	Unknown.
Case 7.	18 hours. Head presentation, baby hurt about face and neck with forceps.	Could not swallow, artificial respiration for 20 minutes, did not cry for 3 weeks. Local paralysis in face. Convulsions soon after birth. 15 minutes apart for 24 hours.	Mild athetosis. Good prognosis.	Birth injury.
Case 8.	8 hours. No instruments used. 8 months pregnancy.	Convulsions about once a month at age of 2. Right side rigid, general paralysis on left side.	Tension tremor, mental retardation.	Questionable.
Case 9.	8½ months pregnancy. 20 hours labor, head presentation.	Artificial respiration and oxygen tent used. Restlessness, difficulty in swallowing, reflexes normal, poor coordination. Tight heel cords.	Primary incoordination.	Anoxemia.

b. Red cells will be crenated.
c. An excess of white cells, including phagocytes containing hemoglobin, will be found.
d. Fluid is uniformly bloody and does not clear with continued flow.

If all these tests are negative, and blood has appeared in the spinal fluid, it is due to trauma from the needle with which the spinal puncture was made.

Altered blood in the spinal fluid is diagnostic. However, absence of blood in the spinal fluid may be due to the fact that the blood has failed to reach the subarachnoid spaces. If practical it is best to wait several days after birth before making the spinal puncture.

In the infant, the manifestations of congenital cerebral palsy are similar to those of cerebral palsy due to birth injury. There is cyanosis, inability to take the breast, feeble cry, and either rigidity or flaccidity. However, in congenital palsy there is no evidence of increased intracranial pressure, such as bulging of the fontanels or changes in the eye grounds, and the spinal fluid is usually normal. Congenital cerebral palsy is usually of a structural nature, and there are other associated malformations (cases 2 and 5). The true etiology is revealed only through postmortem examination. Serious lesions of the brain which were not suspected during life have sometimes been found at autopsy. Ford[6] states that the cerebrums of patients suffering from congenital cerebral palsy fall into three principal groups:

a. Those which show evidence of a diffuse degenerative process or atrophic lobar sclerosis.
b. Those which show gross malformation or defects of development.
c. Those which are normal in appearance, but show defects of development on microscopic examination.

Ford has found many defects of development which he has termed atrophic lobar sclerosis. He is of the opinion that this condition is the result of a toxic or degenerative process occurring *in utero,* and that malformation defects are associated with morbid inheritance. There also may be an interference with oxygenation of the fetus, and this may play a part in the defects of development. The exact etiology is not always determined. However, if the motor manifestation —be it athetosis, spasticity, or flaccidity—is more or less symmetrical, the condition undoubtedly started *in utero.*

Temperature regulation is unstable (case 2). In the congenital defectives fever often develops without any apparent cause, but this happens only rarely in cases due to birth injuries. There is little resistance to infec-

6 Ford, Frank R.: Diseases of the Nervous System in Childhood and Adolescence. Springfield, Ill.: Chas. C. Thomas, 1937.

tion and many of these infants die from childhood diseases. These children are very sensitive to drugs, especially atropine. There is a marked difference between congenitally defective patients and those with birth injuries, both in general development and in reaction to environment. Damage due to birth injury is not progressive. If the child survives the acute stage, there may be continued clinical improvement. The congenitally defective patient, however, has a faulty organism. This fact has been observed repeatedly in the Cerebral Palsy Unit of Duke Hospital.

Care of the Mother

The profound effect on the infant of the mother's diet during pregnancy has been demonstrated in laboratory animals as well as in humans beings, and is well recognized[7]. Vitamin K was first used experimentally to prevent a hemorrhagic disease of chicks. In this disease, which is characterized by low prothrombin values and marked delay in the clotting of the blood, the addition of vitamin K to the diet increased blood prothrombin to the normal level. Vitamin K has also been found essential for normal prothrombin in man. By administration of vitamin K to the mother before parturition, the usual decrease of prothrombin will be prevented. Vitamin K should be administered to all mothers, but especially in cases of toxemias, difficult or instrumental delivery, or premature labor[8]. It should also be given to all infants with hemorrhagic disease of the new born, intracranial hemorrhage, and icterus gravis, all of which may be associated with cerebral palsy.

Care of the Child

One of the most important symptoms of lack of development of an upper neuron is the failure of the infant to take the mother's breast. This brings forth mechanical and dietary problems from the beginning.

As is pointed out in the following case reports, muscular activity and reflex responses are irregular. The sucking and swallowing reflexes are inactive either from hypertension of certain muscle groups or from flaccidity if the infant is not full term. Since respiratory centers fail to act normally, respiration may be interrupted by long periods of apnea. These periods often last long enough to cause fatal asphyxia. In birth injury it is in all probability the hemorrhage which causes the apnea; in congenital cases it is the undeveloped nervous system. Along with mechanical irregularity there is a marked tendency to temperature changes, sensitivity to drugs, and sensory changes. Case 2 shows many of these irregularities.

When the infant refuses to take the breast, mechanical difficulty is usually encountered with the bottle also. Feeding by tube or medicine dropper is commonly used until the bottle can be given. Many children with cerebral palsy are still taking liquids from a bottle at the age of 6 years, but they can learn to take food from a spoon when the reflex activity is such that they can use the nipple of a bottle. The nutritional requirements of an infant with cerebral palsy are similar to those of a normal infant.

Nine-tenths of the histories of infants with cerebral palsies record feeding difficulties. In our opinion, diet is foremost in the proper management of each cerebral palsy case. An early deficiency can never quite be compensated for, and it is therefore important to overcome the mechanical feeding difficulty. Proper rest periods must be encouraged.

The majority of the children in our clinic show signs of malnutrition at the beginning of muscle training. The general musculature is poorly developed. In a few months, however, with a balanced diet and muscle training, the muscles develop a contour suitable to the child's age. This change cannot be attributed wholly to muscle training, but partly to diet and rest as well. We find that the athetoid group consumes two-thirds more calories than the spastic group. In these two groups, certain vitamins have played an outstanding role. Our observations have been made on approximately 300 patients who have been under our care since the cerebral palsy unit of Duke Hospital opened.

Vitamin Therapy

A group of 15 cerebral palsy patients under our care were given a course of treatment with vitamin A in the fall of 1938 by

7. Rose, Mary S.: Care of the Mother, in The Foundations of Nutrition, ed. 3, New York: The Macmillan Company, 1938.
8. (a) Huber, C. P. and Shrader, J. C.: Blood Prothrombin Levels in the New Born, Am. J. Obst. & Gynec. 41:566-574 (April) 1941.
   (b) Javert, C. T. and Moore, R. K.: Prothrombin Concentration in Parturient Women and Their Newborn Infants, Am. J. Obst. & Gynec. 40:1022-1025 (Dec.) 1940.

Drs. Arena and Dann[9]. The patients in this group fell into two classes: (1) those with "spasticity", where there is pyramidal cell involvement; and (2) those with athetosis, where the basal ganglia system of cells is involved with the organic lesion. A control group of patients with the same type of disorders received the same physical care, training, and diet, except for the excess of vitamin A given to the experimental group.

Originally it was planned to give each patient weekly 100,000 U.S.P. units of vitamin A intramuscularly. The source of vitamin A was a fish liver oil concentrate containing very little vitamin D. After the second weekly injection of the material (into the buttocks) there was evidence of an unfavorable reaction in some of the patients to this form of treatment, and thereafter the same concentrate was administered orally, the dose being fixed at 50,000 U.S.P. units daily to allow for the possibility of poor absorption from the intestine. Thus the total treatment for each patient, beginning the first week of October, included two injections totalling 200,000 units of vitamin A, followed by the oral administration of 50,000 units daily from the middle of October until the middle of December — approximately an eight-week period.

In the athetoid group, where the basal ganglia cells are involved, the athetoid spasm was less frequent in the patients treated with vitamin A than in the controls not treated. Caloric intake was not as great in the patients treated with vitamin A. No obvious differences were noted between the control and experimental groups of spastic patients.

Vitamin therapy probably lessens muscle contraction in the patients with muscular hypertension, whether it be due to athetosis or spasticity. The children's growth and development, along with their increased resistance to infection, is largely due to vitamin therapy along with a diet which is worked out for each child and based upon caloric needs per pound of body weight.

9. Arena and Dann. Unpublished data on the use of vitamin A with cerebral palsy cases.

Pancreatic Cancer. The association of loss of weight and abdominal pain with negative physical and gastrointestinal x-ray findings should always suggest the possibility of pancreatic cancer. In many of the cases the mistaken diagnosis of neurosis is made.—Joseph H. Pratt: Pancreatic Disease, J.A.M.A. 120:181 (Sept. 19) 1942.

HISTORY OF CHINESE MEDICINE

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Sturgills

To understand Chinese medicine it is necessary to know the fundamentals of the Chinese theory of cosmogony, for the one universal cause of disease was disharmony of the *Yang* and *Yin*. "In the beginning there was chaos. Absolute Void. Out of it, as time took shape, there was evolved the Great Absolute. Therein is combined the double basis of metaphysical and of material being. In its creative aspect, the Great Absolute is a metaphysical principle, the Way of Life, the 'Tao' from which all ideas within the universe arise. In its material aspect it is primordial matter, out of which the whole material universe was fashioned. Gradually, as Primal Matter evolved, it divided into two parts. These are the two cosmic forces, *Yin I* and *Yang I*, the negative and the positive principles of the universe. The grosser and heavier part, *Yin*, was precipitated and became earth. The finer, lighter part, *Yang*, became sublimated and formed heaven. These two, *Yin* and *Yang*, are the two regulative forces that form by their union and interaction, both the soul and the material basis of the universe. *Yin I* is the passive or female element typifying, in general, the weaker phenomena of nature—cold, darkness, disease, death. *Yang I* is the active or male element, representative of warmth and light, of strength and health and life . . . By their harmony or disharmony all creation continues ordered or disordered . . . (They generate) the Five Elements, Metal, Wood, Water, Fire, Earth, from which all created things arise."[1]

The following quotation from Wong's *History of Chinese Medicine*[2] illustrates a part of the relation of these principles to medicine: "A *Yang* pulse is strong, bounding and large in volume while a *Yin* pulse is weak and of low tension. When the *Yin* predominates one suffers from a *Yang* disease; when the *Yang* is in excess, a *Yin* disease results. Excessive *Yang* causes fever, excessive *Yin* causes chills. Even drugs have this distinction. Stimulants, resolvents, expectorants, pungent substances and hot decoctions are

1. Hume, Edward H.: The Chinese Way in Medicine. Baltimore: Johns Hopkins Press, 1941.
2. Wong, K. Chimin, and Wu Lien-te: History of Chinese Medicine. Shanghai, National Quarantine Service, 1939.

Yang drugs. Astringents, purgatives, haematics, bitter substances and cold infusions are *Yin* drugs. . . . The Five Elements have special relation to five organs as follows: Fire— heart, Wood—liver, Earth— spleen, Metal—lungs, and Water—kidneys." Thus, in diagnosis, treatment, prescribing drugs and even prognosis the two principles and the five elements had to be given serious consideration.

Chinese Medicine in Ancient Times (Legendary Period Before 1122 B. C.)

Just how far back into antiquity the beginnings of Chinese medicine go it is impossible to say. The general nature of the primitive medical practices can be judged from references to them in later writings. Morse[3] describes three stages through which Chinese medical practices evolved before they became crystallized during the period recorded by history:

1. Instinctive and animistic reactions which are probably common to all humanity.

2. Metaphysical reasoning, which included alchemy, astrology and magic, and is also widespread through the human race.

3. A philosophical basis which had a veneer of both genuine and superstitious religious practices.

The early Chinese thought of the sun, moon and other elements of nature as outward manifestations of gods, demons, devils and spirits, and health and disease were thought to be controlled by them. Diseases were regarded as the work of devils in temporary possession of the body, which could be cured of its infirmity only when the intruders were evicted by the application of appropriate incantations, charms, and other superstitious practices[2].

During ancient times there developed the use of certain drugs, largely of herb origin, in contrast to the medicines of animal origin that came into use in the Chou period (1050-221 B. C.). The medical profession was under the control of sorcerers called "Wu I" (priest-doctor). In historical times this character was altered by substituting the symbol for "wine" in place of the one for "priest", indicating a separation of medical practice from the priesthood and the use of elixirs as medicine[2].

There are three legendary "gods of medicine" who belong to this period. *Fu Hsi*, the first emperor, among many other traditional contributions to his people, gave to them the "Pa Kua" or "Eight Trigrams", said to have been revealed to him while riding on a supernatural dragon-horse. To this ruler, the Chinese attribute priority as a builder of tribal social life, within which medicine was an essential element. *Shen Neng*, the blazing emperor, is a legendary figure to whom the "Pen Ts'ao" or "Great Herbal" is attributed[4]. He is said to have had a transparent stomach so that he could watch the action of drugs that he had eaten. *Huang Ti*, the yellow emperor, is said to have written the "Nei Ching", a classic on Internal Medicine.

Even in these early times doctors had begun to specialize. The story is told of an "external complaint" doctor who treated a man with an arrow in his head by breaking the arrow off and applying a plaster, saying, "The external doctor does not concern himself with internal complaints."[3] Two outstanding practitioners of this period should be mentioned. *Yu Fu* was noted as a surgeon who cut open the skin, dissected out the muscles and even washed the stomach and cleansed the intestines. *Ma Shin-Huang* was a famous veterinarian who was said to have cured a dragon's illness and was carried off to immortality by the dragons in gratitude.

Chinese Medicine in the Historical Period (1122 B. C.-961 A. D.)

This is known as the "Golden" period, and the zenith of Chinese medicine was reached during the Han and T'ang times (206 B. C.-907 A. D.). Creel refers to the position of the physician in the Chou dynasty (1050-221 B. C.) as follows: "There were others whom we cannot class as government officials nor yet as artisans in the ordinary sense. Physicians are such a group. There were apparently a good many of them, with not a little medical theory. It was complicated by much admixture of religious and metaphysical ideas, but food and stagnant water were recognized as sources of disease and even epidemics."[5] Hospitals and medical schools were established; anesthesia, enemas, prescriptions and major surgery made their appearance. Those favorite Chinese treat-

3. Morse, William R.: Chinese Medicine, New York, Paul B. Hoeber, Inc., 1934.

4. Flint, James M.: Chinese Medicine, Smithsonian Miscellaneous Report, Vol. 45, Washington, D. C., Smithsonian Institute, 1903.

5. Creel, Herrlee G.: The Birth of China, New York, Reynal and Hitchcock, 1937.

ments of massage, acupuncture (needling), and moxa (burning mugwort on the skin to raise a blister) reached their heyday.

It is of interest that two of China's more unorthodox rulers made contributions to medicine: The Emperor *Ch'in Shih Huang Ti* in a negative way by sparing the medical, astrological and agricultural books from being burned; and *Wang Mang*, at the beginning of the Christian era, by ordering the court physicians to measure the human viscera. The search for the "elixir of life" continued, and cypress and pine seeds, resins, mushrooms, cinnabar, gold, silver, jade and talc were used in the favorite potions. Smallpox was introduced into China during this period. During the Chou period Chinese medicine attained a high degree of development in matters of medical organization, hygiene and public health. The Chou rituals distinguished four kinds of doctors: physicians, surgeons, dietitians and veterinary surgeons[2]. *Pien Ch'iao* lived in the fifth century B. C. and was said to have originated anesthesia.

During the Han period (206 B. C.-220 A. D.), medical writings were less philosophical and diseases were studied more from a clinical standpoint, with emphasis on the physical signs, symptoms and course of the illness. The great trio of Han physicians were *Ts'ang, Chang* and *Hua. Ts'ang Kung* was the first to keep regular case histories of his patients, a practice that was not continued after Han times. *Chang Chung-ching*, the Hippocrates of China, is best known for his "Shang Han Lun", or "Essay on Typhoid". *Hua T'o* attained fame as a surgeon and is now known as the "god of surgery". Native Chinese surgery came to an end with his death. The first woman doctor lived at this time and was recorded as having treated a Han queen. *Wang Shu-ho's* "Mo Ching" or "Pulse Classic" has made him famous as the originator of an extensive lore on this subject. Native practitioners even up to modern times put more stress on the various methods of taking the pulse than on all the other diagnostic techniques combined. Breathing exercises gained a prominent place in the treatment of many disorders.

The medical tradition of the Han regime continued into the T'ang Dynasty (618-907 A.D.). The most famous doctor of this period was *Sun Szu-mo*, whose "Thousand Golden Remedies" in thirty volumes is still used today. He is also credited with having written "Yin Hsi Ching Wei" or "Diseases of the Eye". *Lu Tung-pin* is known as the Taoist Aesculapius. He is said to have attained immortality at the age of 50, and he became a popular god of medicine.

Chinese Medicine in the Medieval or Controversial Period (961-1800)

During this period the decline of medicine with relation to other phases of China's culture and with relation to western medicine began. Its outstanding features were its intensive specialism and the many monographs on particular diseases that appeared. *Ch'ien I* wrote on children's diseases and cured a case of hydrophobia. *Chen Tzu-ming* wrote the first book on women's diseases, in the thirteenth century. A work on beriberi and an imperial Materia Medica appeared during the Sung Dynasty. *Ch'en Yen* was a noted pathologist. Inoculation against smallpox was begun, and though the method was more drastic it was as effective as Jenner's method which was not to come until centuries later. An imperial medical college was founded and state medical examinations were held.

This is known as the "Controversial Period" because the divisions among doctors went beyond specialties and split them into groups with differing views of the causation of disease. In the Chin-Yuan period (1127-1368) there were four groups, contending that disease was due to "too much heat", "foreign substances", "spleen and stomach excess", or "malnutrition". In the Ming period (1386-1644) there were five sects: the "*Yang Yin*" who believed *Yin* was more important in medicine; the "Wen Pu" who were ardent for *Yang's* preeminence; the "Radical" or attacking disease sect; the "Conservative", who restored the old medical books; and the "Moderate" or eclectic sect. Hospitals of the time were more "benevolent institutions" than medical centers; there were no medical societies and very little emphasis was placed on medical ethics[2].

Though the general tenor of this period is one of decline, there were a few outstanding physicians and works that should be mentioned. *Li Shih-chen* compiled the "Pen Ts'ao Kang Mu" or "Great Herbal", the best known work in China's medical field[1]. The famous "I Tsung Chin Chien" or "Imperial Rescript on the Medical Art, the Golden Mirror" was compiled at the order of the

Manchu Emperor, *K'ang Hsi*, and is still considered an authoritative encyclopedia of the best writings of the Han period. The "Four Literary Treasuries" (including a complete medical bibliography) were published at the end of the eighteenth century. *Wang Ching-jen*, sometimes called the "Reformer of Chinese Medicine", was the first person for many centuries to dissect the human body to learn its real anatomy. By studying the bodies of several executed persons he was able to correct many of the long-accepted inaccuracies. Despite this one scientific individual the medical practice of China was to follow the pattern laid down by the Han physicians until the impact of western medicine in the nineteenth and twentieth centuries aroused interest in the scientific approach.

The first contact with western medicine came during the sixteenth century, with the advent of Portuguese missionaries and traders. The first western hospital was established by Bishop Carneira in Macao in 1569. During the early seventeenth century Michael Boym wrote on the Chinese Pulse Doctrine and was the first to give to the western world some of China's medical lore. Just a few years later Jean Terrentius published a small treatise on human anatomy in Chinese and was the first to bring western medical knowledge to the Chinese scholars. These were the beginnings of an ever-increasing exchange that was to become heavily-weighted in favor of China and lead finally to the replacement of native medical practice, with its *Yin* and *Yang* and acupuncture and moxa, by western medicine, with its stethescope and microscope and x-ray, and above all, its scalpel.

Summary

China has made some truly distinctive and worthwhile contributions to medical practice. Hospitals were established in China long before such institutions were known elsewhere in the world. One Chinese claims that the circulation of the blood was known in China 2000 years before Harvey's time[3]. In the field of physiotherapy they have taught the world the value of massage, deep breathing exercises, and hydrotherapy. They were the first to use vaccination against smallpox, and their methods of psychotherapy were as effective as those of the twentieth-century psychiatrist in most respects. The Chinese introduced the use of chaulmoogra oil in leprosy during the fourteenth century and pioneered in the study and treatment of beriberi, smallpox and venereal diseases.

In diagnosis they emphasized inquiry (though of a limited kind), observation, listening to the voice and breathing sounds, and above all, the pulse. Aside from all the quackery that arose in connection with the pulse, many old-style Chinese doctors seemed to possess almost uncanny ability in making diagnosis by this method alone. Mention should be made, for its historical interest only, of the painful and futile therapeutic measures of moxa and acupuncture. Preeminent among Chinese contributions to medical science is their extensive knowledge of drugs, chiefly herbs, built up largely by empirical methods through the centuries. Ephedrine, iodine (for thyroid disease), and stramonium are well-known modern drugs that the Chinese have used for ages. Recent research has given some basis for belief that the use of toad skins and deer's horn has some scientific value[2].

It is evident that China's development along the lines of natural science did not keep pace with her cultural development along other lines. It is probable that a summation of factors was responsible. In the first place, the fact that the Chinese people had attained a high state of civilization by the Sung period made them inclined to be satisfied with themselves and to shut out stimulating influences from the outside. Their habit of "giving out" their cultural pattern to their neighbors, Korea, Annam, Japan and others, became so ingrained that they became unable to accept ideas from the outside, except to a limited degree. This state of self satisfaction did not prove as detrimental to her culture in general as it did in the mechanical and natural sciences, for it was along these lines that the outside world was making such rapid advance during the past four centuries. In the second place, the overwhelming power of a religious and philosophic tradition that opposed change and investigation into the workings of nature prevented the individual research that is a prerequisite to the development of a scientific, practical body of knowledge in any field.

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FEBRUARY, 1943

THE FIRST NATHALIE GRAY BERNARD LECTURES

Last summer it was voted by the students and faculty of the Bowman Gray School of Medicine of Wake Forest College to establish an annual lecture or series of lectures to be given by some eminent authority on a timely medical topic. Because of the great and generous interest she has manifested in the school, the lectureship was named for Mrs. Nathalie Gray Bernard. A joint committee was selected from the faculty and student body to secure a speaker and to set a date for the first series of lectures.

This committee made a very happy selection. Lieutenant Commander A. R. Behnke, M.C., of the United States Navy, who has done work of the greatest importance on the effects of changes in atmospheric pressure on divers and aviators, was the unanimous choice, and those who heard him were enthusiastic in praise of the entire series of three lectures. The first was given Tuesday night, January 12, in connection with the Forsyth County Medical Society's regular monthly meeting; the others were given on the nights of January 13 and 14. All the lectures were devoted to the general subject, "The Military Environment Primarily in Relation to Changes in Barometric Pressure." Dr. Behnke has agreed for all the lectures to be published in the NORTH CAROLINA MEDICAL JOURNAL.

In greeting the audience at the first meeting, Dr. C. C. Carpenter, Dean of the Bowman Gray School of Medicine, enumerated the contributions to charity, science, and education made by the woman for whom the lectureship was named, and in closing paid the following tribute to Mrs. Bernard: "To these benefactions one could add many anonymous acts of generosity and charity. These specific acts and diversified philanthropies could have been planned and executed only by one vitally concerned with the welfare of all mankind. That spirit is a vital part of all truly great medical schools. Thus a common bond is established and the faculty and students through this lectureship honor the one who has so genuinely honored us."

Thursday, January 14, was given over to a whole day of special features, and all doctors from neighboring counties were invited to be guests of the school, not only for the program, but for lunch and dinner. Dr. Harold W. Brown, Dean of the School of Public Health, University of North Carolina, spoke at 10:30 a. m. on "Dysentery", and at 4:30 p. m. on "Tropical Diseases." Both addresses were excellent, and they also are to be published in the NORTH CAROLINA MEDICAL JOURNAL. At 11:30 a. m. a medical clinic was given by Drs. Tinsley Harrison and Wingate Johnson, and at 1:30 p. m. a surgical clinic was given by Drs. Howard Bradshaw and James O'Neill.

The fact that the hospital amphitheater was filled to capacity for all features of the program, and the close attention paid by the audience testified to the interest taken in this brief postgraduate course. It is to be hoped that Dr. Behnke will repeat his visit many times.

A MILITARY PROBATIONARY PERIOD

Two years ago an editorial in the NORTH CAROLINA MEDICAL JOURNAL carried the following statement[1]:

"Much is said of the great expense incurred by the government in caring for soldiers who are found physically or mentally unfit after induction into the army. A simple and practical means of eliminating much of this expense would be to require the prospective soldier to serve a probationary period of three weeks to six months before he is actually accepted."

In the *New England Journal of Medicine* for January 14 Flicker and Coleman[2] conclude an excellent article on the subject of military discharge with the following recommendations:

"We believe that each selectee and enlisted man, prior to his final induction into the Army, should be placed in a replacement center for a probationary period of three months. During this time a competent psychiatrist should assist the company commander in weeding out those physically unfit for military duty before marked breakdowns occur or severe inadequacies make themselves apparent. The great majority of these cases, as well as most undetected psychoneurotic patients, could thus be eliminated without ever being actually inducted. This would save the Army the expense of many hospital days and spare the selectees the mortification of complete realization of failure.

"Furthermore, this trial period should be served without prejudice to the Government, and barring physical disability incurred during it, the enlisted man or selectee should have no claim against the Veterans' Bureau. This arrangement would make possible the saving of both time and money. It would also aid materially in eliminating future compensation claims. It is impossible to estimate how many constitutionally psychopathic persons and mental defectives are now collecting pensions because of a few months spent in an Army training camp in the last war. Judging from our experience, they spent even these few months in the hospital—their sole contribution then, as it is now—only to hinder the war effort."

It is gratifying to have such able backing for our position, and to feel that at last the NORTH CAROLINA MEDICAL JOURNAL is not a lone voice, crying in the wilderness.

1. Editorial, The Draft Board Examiners, North Carolina M. J. 2:94 (February) 1941.
2. Flicker, Captain David J. and Coleman, Major Olon H.: Military Discharge for Inadequacy, Report of 182 Cases, New England J. Med. 228:48-52 (January 14) 1943.

* * * *

THE BEVERIDGE REPORT

The Macmillan Company has published recently an exact reproduction of SOCIAL INSURANCE AND ALLIED SERVICES, which is the now famous Beveridge report. It is a volume of three hundred pages, bristling with tables and statistics, and makes bleak reading for all except those hardy souls who call themselves political economists. Despite its forbidding aspect, it should be in the hands of thoughtful medical men; for one of its basic postulates is "that all classes of the population will be covered financially for *comprehensive medical treatment and rehabilitation*, and for funeral expenses." This means that the practice of medicine in Great Britain, if this report becomes the law of the land, will become a function of the State, and private practice will disappear. The President has said recently that he wanted social security to cover all contingencies from the cradle to the grave, and Madam Perkins has published proposals which include medical care of the people as a function of government. The handwriting is clearly on the wall and the medical profession should read it with thoughtful care.

Without doubt the practice of medicine, as we know it, will undergo profound changes in the post-war epoch. It is of vital importance that our best medical leadership should aid in the development of social security; for otherwise the profession may easily find itself in an extremely unfavorable position. The adoption of an attitude of selfish obstruction will not do; we must be prepared to meet the reasonable demands for *better* medical care of the people, without the sacrifice of that independence and freedom which we like to believe is the American way of life.

The medical profession is *not* united, and there are some who doubt the *quality* of its leadership. Hitler's slogan is, "Divide and Rule," and this same method may easily lead to disastrous consequences for the medical profession.

THE CLINICAL USE OF THE SULFONAMIDES

One of the most valuable features of the excellent *New England Journal of Medicine* is its series of articles on Medical Progress. Among the best of these was an article by Dr. Charles A. Janeway[1], in the issue for December 31, entitled "The Sulfonamides: Their Clinical Use." This gave an admirable summary of the modern knowledge concerning this group of drugs.

The article was presented in the form of answers to a series of questions which constantly recur in medical practice. The answer to the first question, "What are the indications and contraindications for the use of the sulfonamides?" was prefaced by the statement that "it is as wrong to give them without special indications as it is to deprive a patient of their benefits when he is seriously ill." The indications were summarized in a table in which the drugs of first and second choice were named. The principle of sulfonamide therapy was summed up in the statement that "infections with susceptible organisms should be treated with sulfonamides only if they are severe or spreading." An exception was made of such relatively mild but potentially disabling and infectious diseases as gonorrhea, trachoma, lymphogranuloma venereum and other urinary tract infections. Another exception was made of severe undiagnosed infectious diseases, in which the physician is justified in giving sulfonamide therapy a three day trial. A third exception was made of the prophylactic use of the sulfonamides in the following conditions: "dirty, traumatic wounds; burns; influenza, during an epidemic when complicating bacterial pneumonia is frequently observed; known exposure to gonorrhea; cases of rheumatic or congenital heart disease for twenty-four hours before and seventy-two hours following dental extraction, tonsillectomy or any operative procedure that might permit the entrance of bacteria into the blood stream (in the hope of preventing bacterial endocarditis); and contamination of the peritoneal or pleural cavities."

The contraindications include any disease not favorably influenced by one of the drugs. Among these diseases are: "virus or atypical pneumonia and psittacosis; influenza, in the absence of secondary bacterial infection; common cold; typhoid fever; typhus and Rocky Mountain spotted fever; infections due to neurotropic viruses (poliomyelitis and encephalitis); acute exanthemata in the absence of secondary bacterial infection; mononucleosis, in the absence of secondary infection; puerperal infections due to anaerobic streptococci; urinary-tract infections due to enterococci; toxic manifestations of scarlet fever; diphtheria and tetanus."

The statement is repeated that the sulfonamides are not often effective when there is no fever. Janeway says that he rarely uses them unless the temperature exceeds 102 F. or unless there is evidence of extension of the infection, such as sinusitis, adenitis or otitis.

In a patient with a history of a previous severe reaction to a sulfonamide drug, "the physician should use a different sulfonamide and proceed with caution."

As to the choice of drug, Janeway states that "sulfadiazine is the drug of choice in the systemic therapy of all types of infection," with a few possible exceptions. Sulfathiazole is employed in infections of the urinary tract, because it "is rapidly excreted in high concentrations and hence gives best results on smallest dosage." In gonorrhea, sulfadiazine and sulfathiazole give equally good results, but Janeway prefers to save the former for use in more serious infections when larger doses must be given. In staphylococcal infections and gas gangrene sulfathiazole is perhaps the most potent of the sulfonamide group. In anthrax it and sulfapyridine are considered better than the other drugs.

Janeway stresses the importance of giving large initial doses, so that infections may be controlled before toxic effects begin. In the absence of dangerous side effects, he favors continuing the drug for forty-eight hours after evidence of infection has disappeared.

1. Janeway, Charles A. The Sulfonamides. II. Their Clinical Use. New England J. Med. 227:1029 1041 (Dec. 31) 1942.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

The patient was admitted to the Forsyth County Hospital on September 12, 1942, complaining of abdominal distention for three weeks, "high blood pressure" for eighteen years, spells of giddiness and "shaking" since January, 1942. As early as May, 1942, she had suffered vague epigastric pains, not related to meals, and her physician had arranged for barium visualization of the gastro-intestinal tract. No evidence of disease was found. Abdominal distention had begun three weeks prior to admission.

The patient was born in South Carolina and had lived only there and in North Carolina. She had married at 15, had had ten children (three miscarriages), and had worked from childhood until the winter of 1941 as a field laborer. She had had pneumonia at 12 and had never had any other serious illness or consulted a physician thereafter until 1927. At this time she went to a doctor complaining of intermittent headaches and giddiness of three years' duration. These he attributed to hypertension.

No one in her family was known to have had cancer, tuberculosis, lues, or heart disease (although her mother died suddenly at 75). There was no history of alcoholism. The paternal history was unknown, as she was an illegitimate child. Her nine half siblings lived to marry and have children.

There had been no cough, sputum, hemoptysis, or night sweats. She had had no chest pain, dyspnea, cyanosis, or swelling of the ankles. Her appetite was good, although she had lost 40 pounds in the last seven years. She had been advised not to eat meat fifteen years ago because of hypertension, and had religiously followed this advice. There had been no jaundice, hematemesis or melena. She had never had piles and her bowel habits were regular. There were no abnormal symptoms from other systems.

This 82 year old Negress was stoop-shouldered, with moderate kyphosis of the dorsal spine. She could walk easily and balance well with her eyes closed and heels together. The wizened face, thin and inelastic skin, shrunken breasts, dry and brittle nails, arcus senilis, and the ocular cataracts supported her claim of being an octogenarian. Her eyes reacted to light and questionably to accommodation. There was no adenopathy in the cervical, axillary, or inguinal regions. The lungs were normal, and the heart was not enlarged to percussion. The abdomen was moderately distended, but soft (not doughy) and thin-walled, with physical signs of fluid (wave and shifting dullness). There were no dilated veins, tenderness, or abnormal masses. The spleen and liver were not felt; liver dullness was slightly reduced. There were no hemorrhoids, and pelvic examination showed only normal senile atrophy. There were no scars and no edema of the sacrum or extremities, but local wrinkling of the skin just above the ankles suggested that there had been some ankle edema.

Examination of the urine was negative. Examination of the blood showed 4700 white blood cells with a normal differential count, and 3,000,000 red blood cells, with a hemoglobin of 73 per cent (8.2 Gm.). The serum proteins were 6.58 per cent; serum albumin 1.79 per cent and serum globulin 4.79 per cent. The Wassermann test was negative.

An x-ray of the chest showed at the level of the third rib on the right, anteriorly near the periphery laterally, a small, bean-sized, discrete, opaque nodule due to a densely calcified primary tuberculous focus. The left lung fields were normal. The heart, aorta and trachea were normal. The comment was as follows: "The patient has a healed primary tuberculous infection, which at her age is of no clinical significance."

A tuberculin patch test was negative. Paracentesis was performed, and straw colored, cloudy fluid with a specific gravity of 1.022 was obtained. There was no clotting or separating into layers. The fluid boiled solid and there was a heavy precipitate with sulfosalicylic acid. It contained no sugar. Numerous red blood cells and lymphocytes were present, as well as plasma cells and mesothelial cell clumps, but there were no malignant cells.

An exploratory laparotomy was done.

Discussion

DR. ARTHUR GROLLMAN. The diagnostic problem in this patient resolves itself into the interpretation of the probable cause of

the observed ascites and abdominal distention. We are able to exclude most of the causes of ascites on the basis of the physical findings, history, and character of the fluid removed on paracentesis. In spite of the history of long standing hypertension we may exclude congestive heart failure because of the absence of general edema and other symptoms of cardiac insufficiency. Constrictive pericarditis is often accompanied by ascites as an early symptom, but the absence of evidence of increased venous pressure and exertional dyspnea would exclude this as a possibility. The abstinence from meat and the low blood serum albumin suggest nutritional edema as a possible factor in this patient, but this is ruled out by the fact that there was no evidence of peripheral edema and by the fact that the ascitic fluid was an exudate and not a transudate. This last finding also rules out circulatory disturbance. The high globulin content of the blood with a normal total serum protein also speaks against a nutritional disturbance and in favor of some chronic infection. The exudative nature of the ascitic fluid is incompatible with diseases in which there is an interference with the return of the blood flow from the lower part of the body, such as portal cirrhosis of the liver, Banti's disease, and so forth. Other evidence that there was no such interference is the absence of symptoms of dyspepsia, enlarged veins in the abdomen, hemorrhoids, or evidence of hepatic insufficiency. Peritoneal carcinomatosis must be considered as a possibility, but the absence of palpable nodules or cachexia, and the nature of the ascitic fluid render this unlikely. The presence of an exudate indicates some condition secondary to an inflammatory process. This fluid, with its predominant small lymphocytes and mesothelial cells, is of the type encountered in tuberculous peritonitis, which is the diagnosis that best accounts for the findings and history in this patient. At her advanced age, this disease is rare; but this fact does not exclude this diagnosis, since instances of tuberculous peritonitis in the aged, although uncommon, do occur. The rather chronic course, the insidious beginning with abdominal pain, the small amount of ascitic fluid, the absence of much fever, all conform with chronic tuberculous peritonitis as it occurs in the aged. The negative tuberculin test may be accounted for by the fact that an intradermal test with a sufficient dose of tuberculin was not made.

Clinical Diagnosis

Nutritional hypoproteinemia
Malignancy of unknown origin

Dr. Grollman's Diagnosis

Tuberculous peritonitis

Anatomical Discussion

DR. ROBERT P. MOREHEAD: A biopsy taken from the peritoneal lining revealed a chronic granulomatous inflammatory process with tubercle formation. Acid fast organisms were demonstrated and the process is obviously one of tuberculous peritonitis.

Anatomical Diagnosis

Tuberculous peritonitis

CLINICO-PATHOLOGICAL CONFERENCE

Duke Hospital

E. E. MENEFEE, M. D.
and
DOUGLAS SPRUNT, M. D.

DR. MENEFEE: A 38 year old white farmer entered Duke Hospital with the *chief complaint* of fever and weakness for five days. The *family history* and *marital history* were entirely non-contributory.

The *past history* revealed that the patient had always enjoyed excellent health. The only operation had been an appendectomy at the age of 28, with an uneventful recovery.

The *present illness* started seven days before admission to the hospital, when the patient noticed a small pustule on the dorsum of his right hand. Within two days the pustule had broken down, forming a small ulcer with a necrotic crater. At this time he began to have fever, which persisted, and daily hard, shaking chills which lasted about thirty minutes. Following the formation of the ulcer he developed swollen tender masses in the region of the right elbow and then in the axilla. Three days before admission he began to have a hacking cough, which produced from 30 to 90 cc. of purulent sputum daily.

The patient was a farmer who enjoyed rabbit hunting. Three weeks before admis-

sion—two weeks before the onset—, while he was hunting, his dogs caught a rabbit which he took from them and handled.

On *physical examination* the temperature was found to be 39.9 C., the pulse 100, respiration rate 26, and the blood pressure 128 systolic, 78 diastolic. The patient was an acutely ill white male, confused and disoriented. On the dorsum of the right hand there was a dry ulcer measuring 1.5 cm. in diameter, with a "punched out" appearance. The right epitrochlear node was quite large and tender, and extending from the elbow into the axilla was a palpable chain of lymph nodes. In the axilla itself the nodes were enlarged, tender and matted. There was no other lymphadenopathy. The pupils were round, regular and equal and reacted to light and on accommodation. The fundi were normal. The nose and ears were normal. The pharynx was slightly inflamed. Respirations were shallow. The percussion note was dull over the region of the right lower and middle lobes. In this area there were numerous medium and coarse moist rales, and also a few rales over the region of the left lower lobe. The heart was normal in size, the rhythm was regular, the sounds were of good quality, and no murmurs were audible. The spleen was palpable 5 cm. below the costal margin, and was quite tender. The liver was not enlarged. The rest of the physical examination was normal.

Accessory clinical findings showed a hemoglobin of 15.5 Gm., or 100 per cent, and a red cell count of 5,970,000. The white cell count was 4,400 with 69 per cent segmented polymorphonuclears, 5 per cent stabs, 1 per cent eosinophils, 6 per cent large lymphocytes, 18 per cent small lymphocytes, 1 per cent monocytes. The corrected sedimentation rate was 23 mm. per hour. Blood Wassermann, Kahn and Kline tests were negative. The urine was normal except for a trace of albumin. The blood nonprotein nitrogen was 51 mg. per 100 cc. X-rays of the chest were unsatisfactory, owing to the condition of the patient. Skin tests done with 0.1 cc. of 1-100 diluted anti-tularemic serum were negative. Agglutinations for tularemia, brucella, typhoid and paratyphoid A. and B. were all negative.

The patient's temperature ranged between 39.5 C. and 41 C. with a pulse of 100 to 140. Fluids were forced to 3500 cc. per day, and the patient was given 6 Gm. of sulfadiazine on the first day and 4 Gm. per day thereafter. On the day of admission anti-tularemic serum was given, and during the next four days he received a total of 150 cc. Despite this therapy the patient showed no improvement, and on the sixth hospital day his temperature fell precipitously and he expired.

Discussion

DR. MENEFEE: This is, I think, a typical case of tularemia of the ulcero-glandular type. We have a perfectly straightforward history of exposure to a rabbit, followed two weeks later by the primary skin lesion, then the involvement of the lymphatics, accompanied by chills and fever. Symptoms of pulmonic involvement followed, which is not unusual. The enlargement of the spleen is, of course, due to an acute splenic tumor.

Tularemia should be of great interest to all of us because it is a fairly common disease, and also because it has been worked up completely from beginning to end by American investigators. McCoy, working with ground squirrels in Tulare County, California, first isolated and described Bacterium tularense. Francis in 1919 and 1920, working with "deer fly fever" in Utah, recognized the disease and named it tularemia.

The disease may be transmitted to man by the bite of the horsefly, by certain ticks, by bites of animals, by contamination of exposed surfaces of the body with portions of infected rabbits, and by the ingestion of contaminated meat. The incubation period ranges from twenty-four hours to two weeks, averaging about four days.

In this particular case the only unusual factors are the negative agglutinations and the negative skin tests. I do not feel that the negative agglutinations should influence us at all. Most patients do not develop agglutinins until the second or third week. This was a fulminating case, and either the patient's body did not have time to respond, or the infection was so overwhelming that the usual immunological responses could not take place. The diluted serum skin test often becomes positive within the first day. This manifestation is supposedly due to the action between the antibodies in the serum and the antigen present in the patient's body. It must be carefully differentiated from the reaction which may result from the intracutaneous injection of any serum. Foshay, who first

described this reaction, used goat antiserum. We used horse antiserum, and perhaps this was why the test failed. If the patient's blood had been injected into a guinea pig I believe we would have isolated the Bact. tularense. However, this is a dangerous procedure, for practically every laboratory that attempts to culture Bact. tularense has infections develop in its technicians.

DR. D. T. SMITH: Wouldn't you consider a mycotic infection such as sporotrichosis?

DR. MENEFEE: I think the disease was too acute in onset and rapid in course to have been a fungus infection.

DR. F. M. HANES: I agree with Dr. Menefee that this is an instance of tularemia. We have the best reasons to make such a diagnosis—namely, the typical history and physical findings. In these days many physicians tend to lean too heavily on laboratory and accessory findings. They should remember that negative laboratory evidence is entirely useless; one can never rule out any disease merely because the laboratory tests are negative. If accessory aids are positive they are valuable adjuncts, but the basis of all diagnosis still is reliable history taking and careful physical examination.

Dr. Menefee's Diagnosis

Tularemia of the ulcero-glandular type.

Anatomical Discussion

DR. DOUGLAS SPRUNT: This is a typical case of tularemia of the ulcero-glandular type. The lesions everywhere show the characteristic areas of caseous necrosis, with some macrophages, but few if any giant cells and no stainable bacteria or fungi.

A section of the primary lesion on the skin shows a break in the epithelium. On the surface of this area are some contaminating bacteria and polymorphonuclear leukocytes; down in the tissues, however, there are no bacteria, but there is a marked mononuclear reaction.

The lymph nodes draining the primary site show a marked amount of caseous necrosis. The lymph nodes elsewhere also show considerable amounts of necrosis.

The liver and the spleen also show caseous necrosis and mononuclear infiltration.

In the lungs we find small focal areas of caseous necrosis and mononuclear cell reaction, but the predominant picture is one of an aspiration pneumonia.

Anatomical Diagnosis

Tularemia
Primary ulcer on dorsum of hand
Caseous necrosis of epitrochlear and axillary lymph nodes
Caseous tubercles in spleen, liver and lung
Aspiration pneumonia.

MEDICOLEGAL ABSTRACT

J. F. Owen, M. D., LL. B.
Raleigh

Workmen's Compensation: Employer must pay compensation for death of employee only when the death results proximately from injury by accident arising out of and in the course of employment.

This is a case originally tried before a single commissioner of the North Carolina Industrial Commission. The evidence tended to show that on July 17, 1939, a 65 year old man, the claimant's intestate, while washing windows in the gymnasium of a high school building, suffered a fracture of the right leg in two places when the ladder on which he was standing slipped from under him. Immediately thereafter he was given emergency treatment by a local physician, and was then sent to a hospital in a nearby city, where he was cared for by the attending surgeon. After returning home he was under the care of another physician for more than a month prior to his death on February 28, 1940. All of these doctors were of the opinion that the patient suffered, in addition to his injury, from a prostatic trouble, arteriosclerosis, myocarditis, and arthritis, all of long standing. The single commissioner felt that the patient died as a result of the injury, by accident that arose out of and in the course of his employment, and upon such findings an award of compensation was made against the County Board of Education and an insurance company. The case was appealed to the full commission, which agreed with the single commissioner, and awarded death benefits. The defendants appealed to the Superior Court, and the Judge of the Superior Court was of the opinion that the commission findings of fact and its decision and award were free from error of law, and entered the judgment affirming the same. The case was then appealed by the defendants to the Supreme Court.

When this case came on to be considered by the Supreme Court it was the opinion of the members of this tribunal that the evidence failed to show that the injury was of such a character that without it death would not have occurred. For this reason the decision of the lower court was reversed, and in substantiation of this reversal the court had the following to say:

"The evidence showed that plaintiff, a man of advanced years, who had an enlarged prostate gland, arteriosclerosis, myocarditis, and arthritis, all of long standing, accidentally fell and broke his leg, while working for defendant in the course of his employment, and by proper treatment his leg healed, but plaintiff died some seven months after the accident from arteriosclerosis, myocarditis, and arthritis, all of which may have been aggravated by his confinement while his leg healed. **Held:** Evidence will not support an award, as it is not sufficient to take the case out of the realm of conjecture and remote possibility."

This decision was presented primarily for the purpose of showing the legal principle involved, but in addition, it seems to serve as an excellent illustration of how medical witnesses may give conflicting testimony, and still be honest in their opinions. In a situation of this kind, it would be extremely difficult to determine just what effect a serious injury might have in a patient already suffering from the disorders enumerated above, and it should be mentioned in this connection that the Appellate Court itself felt that the patient's condition was aggravated by his confinement, but that the testimony was not such as to show definitely that the injury was the proximate cause of death. As a consequence the only course left open in this particular instance was to reverse the decision of the lower court. (Vol. 222, page 356. Decision rendered Fall Term, 1942.)

MILITARY MEDICINE

OFFICE OF CIVILIAN DEFENSE

OCD Blood Plasma Reserve

The Medical Division of the Office of Civilian Defense pointed out in a recent Medical Circular that plasma reserves are available in every Civilian Defense Region for use in the event of casualties resulting from enemy action or sabotage. The circular emphasizes that this plasma may be used for life-saving in any disaster. If OCD plasma is used in non-war related incidents, its use may be considered as a loan, and arrangements may be made later for its replacement, it is pointed out.

In cities where reserves are stored, they may be obtained by hospitals through the local Chiefs of Emergency Medical Service. If a community is without plasma or if its supplies are depleted, the local Chief of EMS may obtain additional plasma in emergencies from the State Chief of EMS.

* * * * * *

Gas Defense Organization Plan

Recommendations for the guidance of State and local defense councils in the organization of gas defense programs were recently issued by the Office of Civilian Defense through its Medical Division, which is responsible for the administrative and technical organization of gas protection, in Operations Letter No. 91 (Supplement No. 2 to Operations Letter No. 42).

* * * * * *

Plan For Protection of Water Supplies In War Emergencies

A plan of organization for an emergency program to assure adequate water supplies in the event of war disaster is recommended in Circular, Medical Series No. 26, "Appointment and Duties of State and Assistant State Water Supply Coordinators," issued by the Office of Civilian Defense for the guidance of State and local Defense Councils.

The State Water Supply Coordinator is to be appointed as an official of the State Defense Council, on recommendation of the State Department of Health, the Circular advises. The Circular states that a member of the State agency having supervision over municipal water supplies would be a desirable appointee. He should work in close cooperation with the State Department of Health or other State agency responsible for waterworks and with the Regional Sanitary Engineers of the Office of Civilian Defense.

Chief Sanitary Engineer Transferred; Acting Chief Designated

Sanitary Engineer Director Ralph E. Tarbett, U.S. Public Health Service, who has served as Chief Sanitary Engineer of the Office of Civilian Defense since August, 1941, has been recalled to the Public Health Service by the Surgeon General, and Sanitary Engineer Gordon E. McCallum, who has been serving as Assistant Chief Sanitary Engineer, has been designated Acting Chief Sanitary Engineer in his stead.

BULLETIN BOARD

The following letter to Dr. Cobb clarifies the ruling on the use of automobiles for attending medical meetings.

Office of Price Administration
Raleigh, N. C.
January 18, 1943

Dr. Donnell B. Cobb, President
Medical Society of the State of
North Carolina
Goldsboro, North Carolina

Re: Driving to Medical Meetings

Dear Dr. Cobb:

I acknowledge your letter of January 16 regarding the above subject. Since meetings directly related to the occupation of a driver may be attended by a car, it is the opinion of this office that driving to attend a Medical Society Meeting, whether it be county or district wide in scope, is allowable under the present driving ban.

It is, however, necessary that such driving be done only in the event that other means of transportation are not available.

Meetings of an occupational nature which are not primarily related to the occupation of the driver but rather are of a social nature are not exempt from the pleasure driving ban.

Yours very truly,
W. K. Bernhard
Assistant State Mileage Rationing Officer

WAR PRODUCTION BOARD ORDER AFFECTS VITAMIN CAPSULES

To conserve vitamin A supplies during wartime, W.P.B. order L-40 limits the content of capsules to 5,000 vitamin A units.

In compliance with this order, capsules of Mead's Oleum Percomorphum 50% With Viosterol now contain 83 mg. of oil, equivalent to 5,000 vitamin A units and 700 vitamin D units per capsule.

The new size capsule is now supplied in boxes containing 48 and 192 capsules—about twice the number of capsules without increase in price.

News Notes From the State Board of Health

The North Carolina School of Public Health at Chapel Hill has been chosen as the institution through which funds made available by the W. K. Kellogg Foundation will be used for the training of students in public health education from all parts of the United States.

The selection was made by the United States Public Health Service, through which the funds will be administered. Twenty fellowships have been set up leading to a master's degree in public health. Training of the recipients of these, which will be granted to individuals of exceptionally high qualifications, will begin March 20. The summer quarter will be spent in the field and the next two quarters at Chapel Hill.

Fellowships are open to American citizens between the ages of 19 and 40 years, inclusive. Each person to whom one is granted must be the holder of a B. S. degree, or its equivalent, from a recognized college or university, with major emphasis on the basic health medical sciences such as physics, chemistry, biology, and physiology; education, with emphasis on educational psychology, and the social sciences.

This honor came to North Carolina in recognition of its outstanding work in the field of public health education. It was here that the first project of its kind in the United States was put into operation on an experimental basis and the success achieved brought the State distinction which led to its selection as a training ground for public health education specialists from all parts of the Union through the Kellogg Fellowships.

Public Health education programs already have been successfully carried out in various counties, including Cumberland, New Hanover, Wayne, Craven, Carteret and Robeson. These soon will be extended over other areas. In the beginning, this work was sponsored by the State Board of Health, in cooperation with the United States Public Health Service, but the Board of Health now is training its own workers at Chapel Hill. Three of these already have gone into the field and others will follow after the completion of their training. The Public Health Service furnished the personnel with which the original educational program was experimentally launched, with a view to the State's taking over at the proper time. This health educational work in the counties is carried on through the availability of federal funds, without cost to the taxpayers of North Carolina, as is the case with the School of Public Health at Chapel Hill, which has grown until it now has the largest full-time faculty of any similar institution in the United States. Its present staff is made up of eighteen full-time professors, one of whom is on leave and holds a high post overseas; six associate professors, seven research fellows and assistants, and thirty-three lecturers.

* * * * * *

As a result of a recent allocation of funds from the United States Children's Bureau to the Maternal and Child Health Service of the North Carolina State Board of Health, it is now possible for this division to provide financial aid for medical obstetric and pediatric care for wives and children of enlisted men and non-commissioned officers in the armed forces. Since the plan was put into effect, many pregnant women have been helped under its provisions.

Expectant mothers who need such assistance and want to apply for aid under this plan should see the local health officers all of whom are well acquainted with its details. The health officers, in turn, forward the applications to Dr. G. M. Cooper, Director of the Maternal and Child Health Service of the State Board of Health in Raleigh.

"It is felt that this plan has been and will be of a great deal of benefit to both the patient and to the local physicians," Dr. Cooper said. "Delivery by the physicians in the patient's home is usually performed, but in certain cases, patients may be hospitalized for this service. In cases where this care is authorized through the local health officers, the physician's fee is paid from the Maternal and Child Health Service."

* * * * * *

With the cooperation of the United States Public Health Service, the State Board, through its Division of County Health Work, on January 4, launched an orientation course for emergency personnel. Lectures continued through January 16, after which the students spent several weeks in the field. There were in attendance approximately forty of these students, some already in service, others preparing to enter—but all eager to familiarize themselves with practices most needed during the critical period through which we are passing.

No State in the Union has made a greater contribution to the advancement of public health than North Carolina, Dr. W. K. Sharp, Jr., Director of United States Public Health Service District No. 2, told students attending this course. Explaining the relation of the United States Public Health Service to State health departments, Dr. Sharp emphasized that there is no attempt made to exercise any supervision from Washington and that the fact that funds are allotted to State and local departments does not mean that they are told what to do. The United States Public Health Service simply seeks to help and in no case to dictate, he continued. It was not until 50 years ago that the federal department had any power to cooperate with States, he said, and then it was only in the matter of helping to control the spread of communicable diseases.

It was not until 1935 that the United States Public Health Service was in a position to do very much for the States, the speaker went on. At first it secured an appropriation of $8,000,000 for distribution among them. The amount was raised to $9,500,000 and later to $11,000,000. However, he told the public health students, it is for the State health departments and not the federal agency to say what shall be done with funds allotted, distribution being based on three principles: Population, special health problems and economic needs. When representatives of the United States Public Health Service are assigned to work with State or local health departments they are subject to instructions from State health officers and must conform to the procedures in the territory to which they are assigned.

* * * * * *

To lower milk standards, even as a war measure, would surely increase prevalence of typhoid fever and tuberculosis, Dr. Milton J. Rosenau, of Chapel Hill, the first dean and now the director of the North Carolina School of Public Health, declared in a lecture before the group taking the State Board of Health's special orientation course for emergency personnel.

In spite of "new strong pressure to lower the standards of milk," Dr. Rosenau warned his hearers to stand firm in their protective attitude. Any relaxation now, he said, would bring about, all over again, "the unhappy conditions" which have been overcome in the fight against these two diseases.

News Notes From the North Carolina Tuberculosis Association

Preliminary reports from Seal Sale Chairmen throughout North Carolina indicate that many communities are going to have the largest returns in the history of the Association. Final reports from 35 places show a Seal Sale of $5,400.72 this year as compared to $3,845.81 in these same places last year. This is an increase of $1,554.91.

* * * * * *

Dr. Charles E. Lyght has been appointed director of Health Education of the National Tuberculosis Association and assumed his new duties on January 1. He succeeds Dr. H. E. Kleinschmidt who resigned the directorship last summer. Dr. Lyght is well known in the tuberculosis field, having served for five years, 1937-42, as chairman of the tuberculosis committee of the American Student Health Association.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

Lieutenant Commander A. R. Behnke, M.C., of the U. S. Navy, gave three addresses in the Nathalie Gray Bernard Lecture Series at the Bowman Gray School of Medicine on January 12, 13, and 14. The program presented in connection with this lecture series was as follows:

January 12, 8 p. m.: "The Military Environment Primarily in Relation to Changes in Barometric Pressure"—Lt. Commander Behnke.

January 13, 8 p. m.: Second address on the above subject by Lt. Commander Behnke.

January 14—

10:30 a. m.: "Dysentery"—Dr. Harold W. Brown, Dean of the School of Public Health, University of North Carolina.

11:30 a. m.: Special Medical Clinic, Dr. Tinsley R. Harrison, Professor of Medicine, and Dr. Wingate M. Johnson, Professor of Clinical Medicine.

1:30 p. m.: Special Surgical Clinic, Dr. Howard H. Bradshaw, Professor of Surgery, and Dr. James O'Neill.

4:30 p. m.: "Tropical Diseases"—Dr. Harold W. Brown.

8:00 p. m.: "Fitness for the Military Environment in Relation to Changes in Barometric Pressure"—Lt. Commander Behnke.

* * * * * *

On January 28 Dr. John H. Dingle of the Commission on the Control of Respiratory Diseases, Fort Bragg, gave an address on "Atypical Pneumonia".

* * * * * *

Dr. C. C. Carpenter, Dean of the Bowman Gray School of Medicine, attended a call meeting of the Association of American Medical Colleges in Chicago on February 13, 14, and 15.

* * * * * *

Dr. Tinsley Harrison, Professor of Medicine, gave two talks before the sectional meeting of the American College of Physicians held at the Mayo Clinic in Rochester, Minnesota, on February 5. His subjects were "The Interpretation of Pain in the Chest" and "Recent Advances in Hypertension".

Forsyth County Medical Society

The Forsyth County Medical Society met at the Bowman Gray School of Medicine on January 12 to hear an address in the Nathalie Gray Bernard Lecture Series given by Lieutenant Commander A. R. Behnke of the United States Navy.

News Notes

Dr. D. Heath Nisbet announces the re-opening of his office, Suite 222 Professional Building, Charlotte, on January 1, 1943. His practice is limited to Gastroenterology.

* * * * * *

Dr. Amor F. Pierce has opened offices for the general practice of medicine and surgery in the Nissen Building, Winston-Salem.

Thirty-Ninth Annual Congress on Medical Education and Licensure

The Thirty-Ninth Annual Congress on Medical Education and Licensure will be held in Chicago on February 15 and 16. The participating agencies will be the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards, and The Central Council for Nursing Education.

The National Foundation for Infantile Paralysis

General expansion and intensification of the nation-wide fight against infantile paralysis, with progress made in scientific attacks on the crippling disease, are disclosed in the fourth annual report of the National Foundation for Infantile Paralysis, issued by Basil O'Connor, President of the Foundation.

The included financial statement reveals 77 grants and appropriations totaling $1,142,009.35 for the fiscal year ended September 30, 1942. The money was disbursed to medical schools, hospitals, research laboratories, health institutes and foundations, from funds raised by the "March of Dimes" and Celebrations of President Roosevelt's Birthday.

In addition to its national program, the Foundation also expanded its local activities. During the year 450 county chapters were formed, so that today 2,900 of America's 3,070 counties are serviced by approximately 40,000 volunteer workers.

With half of the subscription money returned to the counties of origin, the total return to the nation's local chapters since inception of the National Foundation in 1938 has reached the figure of $4,751,626.80, according to the report.

Highlights of the National Foundation's achievements during the past fiscal year were:

Teaching of the Kenny method of treating after-effects, which entailed establishment of special training programs to provide doctors, nurses and physiotherapists to apply and carry on the method.

Broadening of study in search of a prevention and real cure.

Addition not only to knowledge of the nature of the virus but also the method of spread of the infection.

Reemphasis of the little appreciated role of "spasm" and other temporary symptoms that if untreated result in permanent damage.

Correlation of the study of infantile paralysis with studies of related encephalitis infections.

RESOLUTION

The following resolution relative to the proposed changes in membership of the North Carolina State Board of Health has been adopted by the Buncombe County Medical Society:

"Whereas, Senator Lee B. Weathers of Cleveland county has introduced into the State Senate at Raleigh, a bill—S.B. No. 40—having for its purpose the making of a drastic amendment to Section seven thousand and forty-nine of the consolidated statutes relating to the term of office and qualifications of members of the North Carolina State Board of Health, and;

"Whereas, the purpose of such amendment—regardless of the intent of its author—is to make it mandatory upon the governor, contrary to the existing statutes, to appoint as members of the State Board of Health a commercial dairyman, a food processor and an owner or operator of a restaurant, and;

"Whereas, the inevitable result of such a bill, should it be enacted, would be to jeopardize the efficiency of the State Board of Health by placing thereon men who, because of lack of special training, are in no sense qualified to act in the best interest of the people of North Carolina where scientific knowledge is essential and who, in the nature of things, would not be impartial in passing or in attempting to enforce necessary regulations which might bear hard upon the selfish interests of said members or of their supporters, and;

"Whereas, the governor of our state can be relied upon as have been his predecessors in office—as the representative of the people who elected him, to appoint as members of the Board only such men as are qualified by experience and technical knowledge to act intelligently, justly and impartially in the passage and in the enforcement of regulations with the sole purpose of promoting health and preventing disease among all classes and conditions of men, and;

"Whereas, the governors of this state, justifying the confidence and the trust reposed in them by the people, have always used discretion and good judgment in such appointments, there seems no reason whatever—not even an excuse—to deprive the Governor of the right and the privilege, which he now enjoys, of having a free hand and an unhampered choice in appointing five members of the State Board of Health, and;

"Whereas, under the existing statutes, the work and the effectiveness of our State Board of Health has grown apace and increased year by year until, at the present time, it is at once the envy and the despair of our sister states, and;

"Whereas, because of the service which the State Board of Health has rendered to the people of this state and in recognition of the ever increasing need and demand for such service, the State Legislature, beginning with the modest appropriation of $100 in 1887, has increased the appropriations until in 1941 it reached the sum of $370,000, to which—and because of which—the Zachary Smith Reynolds Foundation added $162,000 and the U. S. Government added $723,000;

"Therefore, be it resolved by the Buncombe County Medical Society, in special session assembled, that, for the reasons set forth, it deplores and hereby voices its strong disapproval of S. B. No. 40, believing as it does, that—regardless of the good intentions which may have actuated Senator Weathers—he has been ill advised; and that this bill, if enacted into law, would make null and void any attempt by the State Board of Health to enforce sanitary regulations; and that it must inevitably result in subjecting the people of this state to greater hazards from disease.

(signed) J. LaBruce Ward, M. D.
H. G. Brookshire, M. D.
Grady Morgan, M. D.
Chas. A. Hensley, M. D.

ANNOUNCEMENT OF $1,000 AWARD

For Outstanding Research on Alcoholism During 1943

1. The research for which the award will be granted must contribute new knowledge, in some branch of medicine, biology, or sociology, important to the understanding or prevention or treatment of alcoholism.
2. Any scientist in the United States, Canada or Latin America is eligible for the award.
3. The project may have been inaugurated at any time in the past or during the year 1943, provided (a) that a substantial part of the work be carried on during the year 1943, (b) that it be developed to a point at which significant conclusions are possible before the end of the year, and (c) that a report on the work has not been previously announced and described before a scientific body or previously published.
4. It is desirable, but not necessary, that those planning to work for the award send to the Council before March 1, 1943, a statement of such intention. If the Council receives such information, it can be helpful in the prevention of undesirable duplication of effort. If a research project is conceived and inaugurated later in the year, 1943, a statement of intention may be sent to the Council at a later date.
5. A report on the work and resulting conclusions must be submitted to the Research Council on Problems of Alcohol on or before February 15, 1944. The Council will provide an outline for use in the preparation of reports.
6. The award will be in cash, and will be given to an individual scientist whose work is judged sufficiently outstanding and significant to merit the award.
7. The Committee of Award will consist of five persons—an officer of the American Association for the Advancement of Science, and four representatives of the Scientific Committee of the Research Council on Problems of Alcohol.
8. If the Committee is not convinced of the outstanding merit of the research done during 1943, as described in reports submitted, it may, at its discretion, postpone the award until another year, or until such time as work of such merit has been performed.

The Council will send on request, to any scientist, an outline of basic policies governing its research program, lists of Council studies (completed, under way and contemplated), and information regarding the studies of other agencies.

Scientists planning to do research in connection with the award may send a statement of intention to

The Director
The Research Council on Problems of Alcohol
Pondfield Road West
Bronxville, New York

GASTROENTEROLOGY NEW OFFICIAL JOURNAL OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION

The monthly journal **Gastroenterology** which began publication in January is the new Official Journal of the American Gastroenterological Association. Dr. W. C. Alvarez of the Mayo Clinic takes over the editorship and is assisted by Dr. A. C. Ivy of Northwestern University.

The nineteen members of the Editorial Board are top-ranking men in the fields assigned to them. The contributors are outstanding clinicians and investigators from all parts of the country.

A feature of value is the abstract section to appear in every number. It will be the most comprehensive service of its kind made possible by the cooperation of specialists in the many fields touching upon problems of gastroenterology.

The annual subscription price is $6.00.

AUXILIARY

REPORT OF THE NATIONAL DEFENSE CHAIRMAN

With all of us affected by the war and with so many members of our Auxiliary directly affected by having their husbands now serving with the Armed Forces, the National Defense Program of the Auxiliary has this year been one of particular interest to all of our members.

At the Fall Board Meeting it was recommended that for our National Defense Projects we continue to aid the Medical and Surgical Relief Committee of America through the sale of Mercy Emblems, and continue to promote interest among our members in first aid classes, nutrition, nurses aides, surgical dressings, canteen units, home nursing, establishment of blood banks, motor corps, war bond sales, victory gardens, entertainment of service men and any other work with the Red Cross or other organizations pertaining to National Defense. On both projects our Auxiliary has cooperated in a most wonderful way and our interest in National Defense is steadily growing.

The state-wide sale of Mercy Emblems was held on December 7, Pearl Harbor Day. Eight county societies cooperated in the sale, and at the present date, with only three reports in, the Auxiliary has already sent the Medical and Surgical Relief Committee $584.00 for the purchase of Emergency Medical Field Sets. I feel sure that we will reach our goal of $1000 by the end of the Auxiliary year.

Our members throughout the state are cooperating with their local Red Cross and defense organizations by giving their services and time to the various defense projects mentioned. It will really be amazing when at the end of our Auxiliary year we know the total number of hours given to these various projects by YOU.

As Defense Chairman I am asking each society this spring to collect any unused instruments and supplies from our doctors. The defense chairman of your society has a list of the instruments and supplies needed by the Medical and Surgical Relief Committee. You are asked to turn your collection in to your local chairman. Won't you cooperate with this appeal in the same way you have with our other projects?

May I take this opportunity to thank all of you for your wonderful cooperation with our National Defense Program and to say to you: Continue to be soldiers like your husbands, whether they are serving with the Armed Forces or at home, by keeping up your morale and giving your time and services to the home front projects.

MRS. JOHN C. REECE

OUR MEN NEED
★ BOOKS ★



SEND
ALL YOU CAN SPARE

Help a man in uniform enjoy his leisure hours. Give your good books to the 1943 VICTORY BOOK CAMPAIGN. Leave them at the nearest collection center or public library.

BOOK REVIEWS

Surgical Pathology. By William Boyd, M.D., LL.D., M.R.C.P.Ed., F.R.C.P. Lond., Dipl. Psych., F.R.S.C., Professor of Pathology, University of Toronto. Fifth Edition, Thoroughly Revised. 843 pages with 502 illustrations and 16 colored plates. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1942.

The fifth edition of this useful book has undergone a marked change. The old indefinite drawings of microscopic lesions have been replaced, for the most part, by excellent photomicrographs. Newly recognized and described disease processes affecting the field of surgical pathology have been added. The increased utilization and importance of surgery in diseases involving the thoracic contents is recognized by the addition of a new chapter on the "Surgical Pathology of the Thorax." The bibliography at the end of each chapter lists the most important references to the given subject. In so far as it is possible, these references are in recent literature.

The adverse criticism of the book is all of a minor nature, with the exception of the failure to include information on tumors of the larynx and accessory nasal sinuses. The use of the term "sarcomatous degeneration" in referring to a malignant change in a leiomyoma of the uterus is condemned by a majority of surgical pathologists. Enterobius vermicularis is now the accepted term for the pin worm instead of "Oxyuris vermicularis". A few incorrectly spelled words were noted.

The author handles the difficult controversial issues such as the "chronic appendicitis" problem very nicely in his highly commendable style of writing.

Boyd's **Surgical Pathology** is recommended to those who desire a general view of the pathological processes operating in those conditions which confront the surgeon.

Autonomic Regulations. Their Significance for Physiology, Psychology and Neuropsychiatry. By Ernest Gellhorn, M.D., Ph.D., Professor of Physiology, College of Medicine, University of Illinois. 373 pages, with 80 illustrations and frontispiece. Price, $5.50. New York: Interscience Publishers, 1942.

The animal organism is a complex mechanism requiring the mutual cooperation of many organs and bodily reactions. This interrelationship is maintained by various chemical, physical, hormonal and nervous reactions and in a broad sense may be designated as autonomic regulation. The autonomic nervous system is primarily involved in this regulation, as are also certain regulatory centers such as the hypothalamus. Although physicians have for a long time appreciated the importance of autonomic regulations in health, lack of physiological data has made it difficult to understand the part which aberrations in autonomic regulation play in various disease processes. Dr. Gellhorn, in the present monograph, has very clearly reviewed the recent physiological advances in this field and shown how they can be applied to the "organismic" concept of the individual. Although it does not deal specifically with problems related directly to clinical practice, the inquiring physician will find much in this volume to stimulate his understanding of the human organism in its response to the external environment and to those deviations from normal which occur in disease.

Fundamentals of Psychiatry. By Edward A. Strecker, M. D., Sc. D., F. A. C. P., Professor of Psychiatry and Chairman of the Department, Undergraduate School of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania Hospital; Attending Psychiatrist, Psychopathic Division, Philadelphia General Hospital. 201 pages. Price, $3.00. Philadelphia: The J. B. Lippincott Company, 1942.

Dr. Strecker's excellent and well deserved reputation is a guarantee of the soundness of the principles of psychiatry set forth in this little volume. It gives in compact form a working knowledge of the fundamentals of his chosen specialty. It was written in recognition of the urgent need arising out of the present world conflict. Its purpose is well expressed in the author's foreword:

"Each doctor, whether he is a medical officer or remains in civil life to give medical aid to the noncombatant population, must needs acquire a minimum of psychiatric information and skill.

"It requires about five years to train a medical man as a psychiatrist. Obviously, it would not be feasible suddenly to make a large number of physicians into psychiatrists. Yet it is a matter of great urgency that a workable knowledge of psychiatry be made available. In the hope of supplying briefly and concisely this need, this handbook of psychiatry is presented to the medical profession, civilian and military."

As might be expected, its very compactness means that no one subject can be covered in detail, and for information on some specific case, a larger and more comprehensive treatise would perhaps be consulted. To one who wants a rapid survey of the whole field of psychiatry, however, this volume can be heartily recommended.

Principles of Extraperitoneal Caesarean Section. By James V. Ricci, M. D., Associate Clinical Professor of Gynecology and Obstetrics, New York Medical College; Attending Gynecologist, New York City Hospital; and James Pratt Marr, M. D., F. A. C. S., Associate Attending Surgeon, Woman's Hospital in the State of New York; Adjunct Professor of Obstetrics and Gynecology, New York Polyclinic Hospital; Diplomate American Board of Obstetrics and Gynecology. 224 pages, with 47 illustrations. Price, $4.50. Philadelphia: The Blakiston Company, 1942.

This book is an excellent monograph on the general subject of cesarean sections. It is written in an interesting manner, and a complete review of the history of cesarean sections is included. The earliest efforts to do extraperitoneal cesarean sections are reviewed, and the methods and results are described in considerable detail.

This volume serves as a complete reference book on this subject. There is a voluminous bibliography and an excellent review of the literature. The anatomy is described in detail and there are excellent illustrations. Particular attention is given to the extraperitoneal cesarean section. There is a chapter on the incisions, scars, and ruptures of the lower segment, with a critical analysis of the advantages of the various types of lower uterine incisions. The reports of rupture of lower uterine segment scars are collected. All of the methods of extraperitoneal cesarean section are described in a clear and concise manner.

This book belongs in the library of every obstetrician.

Genetics for Medical Students. By E. B. Ford, M.A., B.Sc., Reader in Genetics, University of Oxford. 162 pages. Price, $2.50. London: Methuen & Co., Ltd., 1942. Published in Canada by Reginald Saunders, Toronto.

In the opinion of the reviewer the title of this book is somewhat misleading. One would expect that a volume with this title would deal primarily with the medical aspects of genetics, but this is not the case. The material covered is a condensation of the principles of genetics to be found in any college textbook of genetics, with occasional illustrations from human material. The principal items discussed include Mendel's Laws, linkage, crossing over, multiple alleles, sex-determination, mutation, evolution, and gene physiology. In the attempt to cover a wide field in so short a space clarity of description is sometimes sacrificed. Although the terms "backcross", "F1 generation" and "F2 generation" are quite useful in experimental genetics to denote specific genotypic matings, the use of these terms in human genetics is confusing and unfortunate. Twenty pages are devoted to discussion of the blood groups, but the scattered discussions of human pathologic genes probably do not occupy this much space. The statement that retinitis pigmentosa inherited as an autosomal recessive is always associated with deafness is, of course, in error.

If this book is considered as a brief compendium of the principles of genetics, it covers a wide field and is accurate and well written. It is recommended to anyone who desires a short exposition of genetic laws without extensive reference to the experimental work on which they are based.

Psychologic Care During Infancy and Childhood. By Ruth Morris Bakwin, B.A., M.A., M.D., Assistant Clinical Professor of Pediatrics, New York University College of Medicine; Director of Pediatrics, New York Infirmary for Women and Children; Assistant Pediatrician, Bellevue Hospital; and Harry Bakwin, B.S., M.D., Associate Professor of Pediatrics, New York University College of Medicine; Associate Pediatrician, Bellevue Hospital; Consultant, Middletown Hospital, Middletown, New York. 317 pages. Price, $3.50. New York: D. Appleton-Century Company, Inc., 1942.

In the preface to this book the authors state: "In a field where so much is controversial it is important that the physician remain as nearly as possible within the realm of common sense and experience." The book itself naturally cannot instruct one in how to acquire common sense, and, furthermore, too little of the authors' experience is disclosed. The title gives a false idea of the contents, because, although the description of the psychological problems of childhood—including everything from phenylpyruvic oligophrenia to constipation — is quite complete, nothing more than general statements is given in regards to management of these problems or correction of overindulgence, overanxiety, overprotection, over- and under-affection, rejection, etc. in the parents. For one who has no knowledge of children the book may be of value in disclosing the great importance of parental training and example in mental hygiene. However, if one expects to discover the all important details of correction of parental behavior and attitudes, he will be disappointed.

Arthritis in Modern Practice. The Diagnosis and Management of Rheumatic and Allied Conditions. By Otto Steinbrocker, B.S., M.D., Assistant Attending Physician and Chief, Arthritis Clinic, Bellevue Hospital, Fourth Medical Division, New York City. With Chapters on Painful Feet, Posture and Exercises, Splints and Supports, Manipulative Treatment and Operations and Surgical Procedures, by John G. Kuhns, A.B., M.D., F.A.C.S., Chief of the Orthopedic and Surgical Service, Robert Breck Bingham Hospital; Assistant Visiting Orthopedic Surgeon, Boston Children's Hospital. 606 pages. Price, $8.00. Philadelphia: W. B. Saunders Company, 1941.

This book does just what it claims to do: gives a clear presentation of all forms of arthritis, their diagnosis and treatment. Explicit directions about all forms of therapy, including diet, that the authors have found helpful, are given; but the book is not loaded with extraneous matter. A valuable feature is a twenty-page glossary of signs, syndromes and other data related to rheumatic disorders. It can be heartily recommended to any doctor who wants to learn more about this important subject.

A DOCTOR'S PLEA IN WARTIME*

The doctor's life, in times like these,
Is not exactly one of ease.

For, on the home front, each M. D.
Is busier than any bee!

He's shouldering the burden for
The other docs, who've gone to war.

This leaves your doctor precious little
Time to sit around and whittle.

And indicates the reason why
You ought to help the poor old guy.

HOW?

1. By keeping yourselves in the best of condition
   Thus avoiding the ills that demand a physician.

2. By phoning him promptly when illness gives warning,
   But—unless very serious—waiting till morning.

3. By cheerfully taking whatever appointment
   He makes for prescribing his pills or his ointment.

4. By calling on him where he works or resides
   Instead of insisting he rush to your sides.
   (Of course, he'll come 'round when there's need for his service
   But spare him the trip when you're nothing but nervous.)

5. And, last but not least, you can help in the crisis
   By carefully following Doctor's advices.

* * *

If these commandments you'll adhere to
A doctor's heart you will be dear to!

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THE MILITARY ENVIRONMENT PRIMARILY IN RELATION TO CHANGES IN BAROMETRIC PRESSURE AS APPLIED TO CLINICAL MEDICINE

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LECTURE I: THE EFFECTS OF COMPRESSION

The art and science of civilian medical practice in relation to the care of sick or injured patients usually require but little modification for application in military service. Not only are reserve medical officers capable of fulfilling the professional duties of the military hospital, but the tremendous stimulus that warfare provides for new or improved therapeutic measures is reflected by the many developments that originate and are fostered in the reservoir of civilian experience. The preparation of plasma, for example, by John Elliott of Salisbury, North Carolina, and its utilization by physicians in this state preceded and later facilitated the efforts of Commander Lloyd Newhouser and Major Kendricks to accomplish one of the truly life saving achievements of the present war.

The civilian physician, moreover, is becoming increasingly familiar with those conditions affecting large groups of people in industry that produce overcrowding, fatigue, and accidents inherent in the operation of stationary and mobile machinery. The preventive measures applied are again common to both civilian and military life.

It is that phase of military life, however, dealing with the effect on healthy men of such deleterious but not immediately incapacitating environmental factors as noise and vibration, unaccustomed motion, and acclceration, periods of monotony and confinement punctuated by the performance of gruelling tasks, extremes of temperature, and wide variations of barometric pressure that may be unfamiliar to the physician in civil life.

To evaluate the harmful effect that these influences exert, and to provide protective measures that prolong the fighting life of the individual are tasks that often require long and intimate experience with military operations. Since these harmful forces tend to create a condition of irreversible functional breakdown, the military surgeon strives not only to exercise protective measures, but also to train and condition the individual so that the requisite adaptation to the adverse environment will be facilitated.

It is the purpose of these lectures to describe phenomena observed in the military environment that may be of particular interest in view of their relationship to certain aspects of clinical practice. Of these phenomena alterations of barometric pressure affecting divers and aviators produce tangible derangements that are not wholly divorced from clinical civilian experience.

The Nathalie Gray Bernard Lectures. Presented at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

(The contents of this paper are not to be interpreted as an official expression of the Navy Department.)

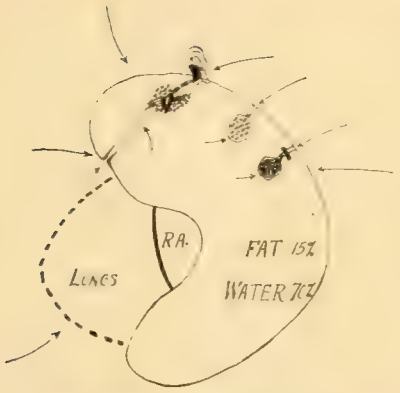


Fig. 1. This diagram illustrates the effects of pressure on the body, showing equalized pressure on the tympanic membrane and in a sinus space, and congestion and hemorrhage into a sinus space when the opening into the sinus is blocked, preventing equalization of pressure. From Behnke, A. R.: High Atmospheric Pressure, Ann. Int. Med. 13:2217-2228 (June) 1940.

The Effect of Compression

In a study of the effect of pressure one may consider that the native pearl diver is subjected to an additional compressive force of one atmosphere for every 33 feet of descent in sea water. At a depth of 100 feet, for example, the total pressure acting on his body is approximately four atmospheres.

At this depth the air in the diver's chest is compressed to one-fourth of the initial volume, since the pressure within the lungs is increased fourfold (fig. 1). The depth, therefore, to which the unprotected diver can descend appears to be limited by the ratio of chest volume to residual air volume. The force of compression acts also to move air into the spaces of the middle ear and sinuses, so that the pressure within them is made equal to that outside.

The phenomenon of interest in connection with compression is the absence of symptoms, provided that the pressure is equally distributed on all parts of the body. Apart from the hydrostatic compression of the thorax and abdominal viscera containing gas, demonstrable change is not observed.

If the diver is compressed in a naval recompression chamber there is even less alteration, since the thoracic volume is unchanged (fig. 2). At a pressure of sixteen atmospheres, equivalent to a depth of 500 feet, one observes no symptoms arising from compression of protoplasm, provided that air has free access to all surfaces of the body, such as the membranous linings of the frontal sinuses, the ethmoid and the mastoid air cells.

On the other hand, an unequal distribution of pressure—that is, a difference in pressure of 1/16 of an atmosphere or less than 50 mm. of mercury or 1 pound per square inch —acting on the body induces the symptoms of pain and the concomitant pathologic alterations of congestion, edema, and hemorrhage (fig. 1).

Referring again to the native diver submerged at a depth of 100 feet, we observe that the initial chest volume of 6,000 cc. has been reduced to 1,500 cc. If the diver descends to greater depths the additional hydrostatic pressure, unable to compress further the rib cage, will bring about a condition known as a "squeeze".

The effect of the "squeeze" is to force

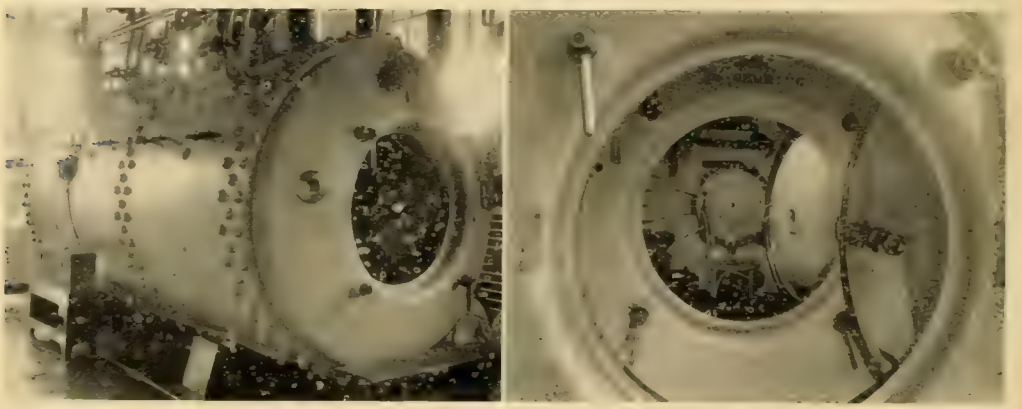


Fig. 2. Photographs of a Naval recompression chamber.

blood and tissue fluid into the relatively decreased pressure area created in the residual pulmonary air. Thus we see that nature not only abhors a vacuum, but also is not on friendly terms with a difference in pressure. Equalization of pressure tends to be restored by the accumulating transudate, but it is at the expense of the tissue.

In a similar manner aural and sinal membranes are injured by a "squeeze" if the corresponding channel openings do not permit the free ingress of air.

During the past twelve years thousands of our submarine personnel have been subjected to 50 pounds per square inch excess pressure in the naval recompression chamber in connection with the submarine escape drill. From 5 to 25 per cent of the trainees at any given time have been unable to accommodate readily the excess pressure by reason of "colds" or varying degrees of infection of the upper part of the respiratory tract which act to seal the openings of the auditory tubes, and less frequently the sinal meatuses.

In aviation during descent from high altitudes the increased pressure similarly affects individuals to create a condition termed aero-otitis media by Armstrong and Heim. In civilian aviation the stipulation that passenger aircraft must descend at a rate not greater than 300 feet per minute was based upon the difficulty generally experienced in accommodating the increased pressure.

In the pressure chamber the familiar anatomic alterations are conveniently studied by observing the tympanic membrane. As the pressure is increased, the tympanic membrane on the side of the blocked auditory tube is pushed inward, blood vessels appear over the handle of the malleus as a fine radiating network, the membrane loses its luster and then becomes suffused with blood. Differences in pressure of about 50 mm. of mercury suffice to bring about these changes. Presumably these derangements affect the lining membrane of the whole middle ear space and mastoid air cells.

Similar changes are known to take place in the sinuses, since frank hemorrhage has been induced by the differential pressure.

A poorly filled tooth containing an enclosed pocket of air will likewise be injured by the difference in pressure.

Pain is the concomitant symptom elicited by the unequalized pressure, and is confined to the area affected. With reference to the ear the pain may be felt over the mastoid area as well as in the auditory canal. The particular obstructed sinal space and even the defective tooth make their presence known by the specific and sharply circumscribed pain.

Illustrative of the same type of trauma is the otitis media following high altitude flight, and indirectly brought about by oxygen inhalation. Air leaves the aural spaces during ascent to high altitudes and is replaced by oxygen during descent. When the ground level is reached the aviator may be entirely free from symptoms during the daytime. During sleep, however, oxygen continues to be absorbed, and the suspension of the voluntary effort to swallow results in a cupping action on the middle ear tissues.

The symptoms and signs of the oxygen otitis media are indistinguishable from those arising from obvious pressure trauma. This troublesome condition can be relieved when air is substituted for oxygen inhalation during descent from the 12,000 foot level.

Effect on Hearing:

Although the pathologic disturbances may be severe, our observations point to the conclusion that even such extensive effects of pressure trauma as hemorrhage and perforation of the membrane are quickly repaired. Acuity of hearing is temporarily decreased throughout the whole range of the audiogram, but in contrast to the effect of gunfire, evidence at hand does not indicate that there is permanent deafness.

Complications of suppurative otitis media and pansinusitis are infrequent if the individuals affected stay out of the water. The spread of infection by air forced into the enclosed spaces does not appear to be an important factor in this condition.

In clinical practice a form of catarrhal otitis media and the frontal "vacuum" headache simulate closely the type of trauma ascribed to negative pressure.

The occlusion of an auditory tube or frontal sinus leads to a partial absorption of oxygen proportional to the difference between the pressure in the air of 159 mm. of mercury and the pressure in the lining membrane of less than 40 mm. of mercury. Such disturbance gives rise to the type of pain and the pathologic picture described for the

acute injury observed in the pressure chamber.

It is recognized that in children and infants the presence of adenoid tissues around the opening of the auditory tube may render more frequent the occurrence of catarrhal otitis media during inflammation of the nasopharynx. That the concomitant pain may be referred to the mastoid area, which is tender to palpation, indicates not necessarily an infective process, but a pressure trauma brought about by the rather complete absorption of the incarcerated oxygen.

The Pressure Chamber as a Diagnostic and Therapeutic Appliance

Consideration may, therefore, be given to the utilization in civilian life of small pressure chambers by both otolaryngologist and bronchoscopist for diagnostic and therapeutic purposes. We have come to regard the pressure chamber as a valuable diagnostic device that enables us to ascertain quickly the patency of the auditory tube and the sinal meatus. In a measure it serves also as a presumptive test for physical fitness. Those individuals who are able to tolerate increased pressure at a rate of about 30 pounds per square inch per minute are generally free from infection of the upper part of the respiratory tract. In this day of prevalent acute or subclinical nasopharyngeal infection, pressure tolerant individuals form the more rugged body of our population.

As an appliance for bringing about ventilation and drainage of aural sinal spaces, the chamber has proved to be effective whenever we have had occasion to treat our divers. In contrast to some types of suction apparatus, the chamber procedure is physiologically sound.

Disturbances of Gaseous Equilibriums

The profound physiologic responses incident to an alteration in pressure are related to disturbances in gaseous equilibriums. On compression, the nitrogen in the air will be absorbed by the circulating blood and transported to the body solvents, fats, and fluids.

The manner of absorption of atmospheric nitrogen is shown by figure 3. Actually curve "A" is based upon measurements of the dissolved nitrogen removed from the body of an individual during a six hour period of oxygen inhalation. The hypothetical curves "B" and "C" represent the absorption or

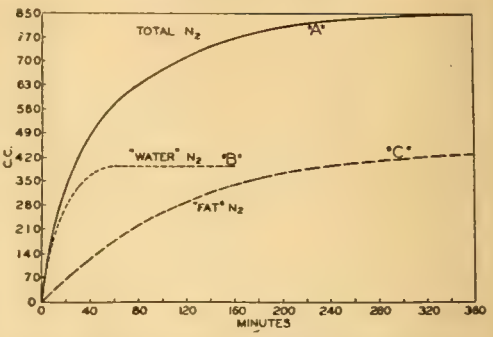


Fig. 3. Total N_2. (A) represents the average of the values for nitrogen elimination from three men (average weight 64 Kg.) who breathed pure oxygen at atmospheric pressure. "Water" N_2 (B) and "Fat" N_2 (C) are hypothetical curves showing the absorption and elimination of nitrogen by the body solvents. The values for nitrogen on A are approximately the sum of corresponding values on B and C.

From Behnke, A. R.: Application of Measurements of Nitrogen Elimination to the Problem of Decompressing Divers, U. S. Nav. M. Bull. 35:219-240 (April) 1937.

elimination of nitrogen from body fluids and fat respectively.

The nitrogen curve represents essentially the absorption and elimination of all inert gases. Ether vapor, for example, is absorbed by the body in a similar manner. Departure from the nitrogen curve will depend upon the distribution coefficient of the gas between the air in the lungs and the blood.

It would be expected that a given pressure of cyclopropane in the lungs would require many hours to come into equilibrium with the pressure in the body, in view of its high fat-water solubility ratio (35 to 1) in contrast with ether or nitrogen, which possesses a corresponding ratio of 5 to 1. Fat, therefore, acts as a gaseous reservoir.

The ether absorption curve, on the other hand, is expected to differ from the nitrogen curve by reason of the high solubility of ether in blood and the consequent delay in attainment of equilibrium between the ether pressure in the lungs and the blood. The absorption of carbon monoxide by the blood illustrates the importance of the distribution coefficient in the attainment of equilibrium between the gas in the alveoli and the blood when the disparity in the distribution ratio is great. By contrast, the low solubility of nitrogen in blood permits the immediate attainment of equilibrium between the alveolar gas and the blood.

Quantity of Gas Dissolved in the Body:

From the composition of the body in terms of fluid and fat the quantity of gas absorbed can be computed on the basis of the solubility coefficient. At normal barometric pressure 800 to 1200 cc. of nitrogen are absorbed by the tissues of the body and divided about equally between the fluids and fat.

In regard to ether, the pulmonary concentration required to maintain anesthesia, 3 per cent, will under conditions of equilibrium be associated with an intake of about 40 liters of the vapor, equivalent to about 170 cc. of liquid ether.

Narcotic Action of Nitrogen:

When the air pressure is raised about four atmospheres—equivalent to a diving depth of 100 feet—the atmospheric nitrogen, wholly benign at normal pressure, acts as a narcotic substance to impair neuromuscular coordination and to slow cerebration.

One of our student divers, when asked how he felt on his first deep dive, replied, "I felt as though I were drunk on the bottom"; but he concluded, "It was the best dive yet."

The nitrogen intoxication is in fact closely allied to alcoholic manifestations, to the effects of anoxia, and to the responses associated with that large group of substances that depress the function of the nervous system. The pleasant initial state of euphoria later exacts its toll of irritability, drowsiness, and the need for sleep.

During salvage operations undertaken to raise the U.S.S. SQUALUS, one of the divers at a depth of 220 feet forgot his task and called out a series of football signals from the deck of the sunken submarine. The futility of employing air as a breathing medium was demonstrated by another abnormal response. A diver, in the belief that he was about to remove an obstruction, attempted to usurp the task of the Fate Atropos in his effort to sever his own air and lifeline. The following statement of one of the divers illustrates the helplessness that may attend the inhalation of compressed air:

"I made a normal descent, but as I started to get aboard the submarine I had a turn around my leg with the descending line. Had to struggle a bit to get it clear. Got on the submarine, called "topside" and reported. Did not hear any answer. I am not sure, but I think that I asked them if they heard me, to give me the telephone signal on my life line. I must have lost consciousness, for the next thing I remember is that I was jerked up off the submarine. I must have had control of myself on the way up, for when I regained consciousness I had the control valve in my hand."

That the presence of carbon dioxide in the diver's helmet augmented the symptoms cannot be doubted from the subsequent experience with the synergistic action of this gas. Carbon dioxide, by virtue of its augmentative effect on cerebral circulation, tends to render more effective a given gas pressure in the lungs. The impairment in function during the inhalation of air in the pressure chamber at a simulated depth of 300 feet was in no way comparable to the helplessness of the divers working at a depth of 240 feet.

The successful outcome of the submarine salvage operations was due to the employment of helium as a substitute for the nitrogen of the air. Thus, the inhalation of mixtures of helium and oxygen has provided atmospheres conducive to efficient activity at depths up to 500 feet, or under conditions in which the inhalation of air would have terminated in unconsciousness.

As to the cause of the non-activity of helium in contrast with nitrogen, one may consider that a physical property is operative, since argon, although possessing chemical inertness as does helium, nonetheless elicits the nitrogen type of narcosis. Of the physical properties the oil-water solubility ratio and the molecular weight may be important. In accord with the Meyer-Overton concept is the fact that helium possesses an oil-water solubility ratio one-third that of either nitrogen or argon.

Whatever the physiologic basis of action, the intriguing fact is that atmospheric nitrogen, an elementary and benign gas as it exists in the body at normal pressure, will induce a narcotic type of unconsciousness at high pressure.

Effect of Oxygen at High Pressures:

The period of time that pure oxygen can be safely breathed at sea level pressure has not been determined. The dog, rabbit, rat, and other small animals develop pulmonary edema and hemorrhagic extravasation after twenty-four to forty-eight hours' exposure in the concentrated oxygen atmosphere. In

man, contradictory reports of oxygen tolerance arise, perhaps from the failure to consider that healthy men may react differently from patients, and that interruption of oxygen inhalation for short periods of time or a decrease in the percentage breathed fortifies resistance to toxic symptoms. It should be emphasized that the administration of oxygen as clinically employed is usually well within the limits of tolerance. Under certain conditions, however, healthy men complain of irritability and irritation of the nasopharynx following prolonged (six to seventeen hours) inhalation *without interruption* of 99 per cent oxygen.

If in a pressure chamber an individual breathes oxygen instead of air a series of wholly different phenomena supervene.

At a pressure of three atmospheres the oxygen absorbed in the lungs and transported in physical solution in blood is adequate to meet tissue requirements so that the oxyhemoglobin is not reduced in its passage through capillaries. This seemingly desirable condition of complete redbloodedness is marred usually during the fourth hour of oxygen inhalation by a progressive contraction of the visual fields which terminates in amblyopia (fig. 4).

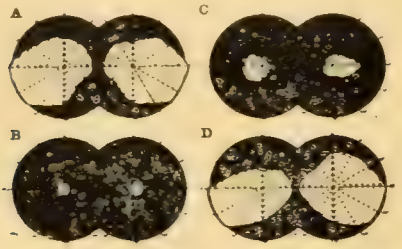


Fig. 4. Perimetric measurements made before and after three and one-half hours' oxygen breathing at three atmospheres' pressure (30-lb. gauge). A represents normal field limits, the determinations being made with the Ferree-Rand perimeter and exposure method with 7 foot-candles illumination. B, C, and D represent field limits 5, 25, and 50 minutes, respectively, following three and one-half hours' oxygen breathing, observations being made at atmospheric pressure with a black perimeter of 25 cm. radius illuminated by a blue bulb placed behind and above the observer's head; moving stick stimuli were used and checked by the exposure method; the test object was a white disc 6 mm. in diameter.

From Behnke, Forbes, and Motley: Circulatory and Visual Effects of Oxygen at Three Atmospheres Pressure, Am. J. Physiol. 114:436-442 (Jan.) 1936.

Characteristic of the action of oxygen is the disappearance of these alarming symptoms when air is again breathed.

If now the ambient pressure is raised to four atmospheres or higher, oxygen inhalation is accompanied by convulsive seizures and at times an aura. Except for an increased intensity, this condition simulates the convulsive states of idiopathic epilepsy. Recovery, again apparently complete, attends the substitution of air for oxygen.

Perhaps no other agent is capable of bringing about similar responses that exhibit the reversibility characteristic of oxygen poisoning.

Mention may be made again of the influence of carbon dioxide, which renders a given oxygen pressure in the lungs more effective by bringing on the earlier onset of symptoms or their appearance at a lower pressure level.

Pressure thus serves to alter the properties not only of innocuous nitrogen but also of life sustaining oxygen. When the door of the pressure chamber closes, one gas may become a narcotic substance, the other a convulsive agent.

Lecture II
The Effects of Decompression

Overdistention of the Lungs

Following submarine disasters in 1925 and 1927 the Navy Department developed two types of appliances to enable personnel to escape from sunken craft. In the steel bell, devised for collective rescue, there are no physiologic or clinical considerations involved unless we consider the problem of claustrophobia.

The second appliance, essentially a rebreathing bag, was associated with a number of accidents in the early days of submarine escape training (fig. 5). In operation the "lung" device is inflated with oxygen at a pressure equal to the water pressure at the depth of submergence. When the submerged individual ascends to the surface, the compressed gas in the lungs and in the breathing bag must escape through a relief flutter valve located on the bottom of the appliance if the intrapulmonic pressure is to be maintained at a level equal to the hydrostatic pressure.

Although the majority of trainees made normal practice ascents, it was observed



Fig. 5. Submarine escape appliance is a rebreathing device with a relief flutter valve located at the bottom of the reservoir bag fifteen inches below the mouthpice. During ascent the lungs tend to be distended by a pressure equivalent to the weight of the fifteen inch water column.

that occasionally an individual after reaching the surface of the water would lapse into unconsciousness. The following description is typical:

"About a minute later he slowly collapsed in the water. . . . The extremities and body were cold and the muscles were rigid. Breathing was shallow and rapid and the pupils were dilated, but reacted to light. The radial pulse was absent and the heart seemed slow and weakened. After about 15 minutes the patient began to make groaning sounds and to roll his eyes about. . . . He was then dressed, but gave no assistance to this act and made thrashing, and apparently hysterical movements with the arms and legs. . . . When seen about a half hour later he complained of loss of vision, even to light, and anesthesia of the left foot and leg."

The cause of these accidents, at first obscure, was clarified by the realization that a frightened man might hold his breath and that spasm of the glottis sealing the trachea would permit the expanding gas to overdistend the lungs, rupture the alveoli, and force gas in the free state into the pulmonary circulation. Subsequently these gas bubbles formed emboli which gave rise to asphyxia, paresthesias, paralysis, and loss of consciousness.

In corroborative experiments on the anesthetized dog an intrapulmonic pressure in excess of 80 mm. of mercury applied for periods of ten seconds or longer was associated with the presence of free gas in blood vessels.

Accidents connected with practice escapes have occurred at depths of only 15 feet. On the other hand, the native diver may ascend to the surface without injury from depths of 100 feet. In the case of the trainee the compressed air at a depth of fifteen feet may not be able to expand without rupturing alveoli in a rapid ascent to the surface. The lungs of the native diver, however, in his rapid ascent to the surface cannot be expanded beyond the volume present on the surface at the beginning of the dive.

When the etiology of the submarine escape accidents had been ascertained, it followed that prevention of pulmonary overdistention was a matter of proper ventilation of the lungs and that the appropriate treatment of injured men was compression in a chamber. This procedure has been successfully applied in the treatment of extensive traumatic gas embolism.

In subsequent practice ascents it has been possible to fill the lungs with compressed air at a depth of 100 feet and then ascend rapidly to the surface. If one holds his breath at the beginning of the ascent, a sensation of substernal distress, and a feeling of actual stretching of the lungs soon forces an exhalation.

Accompanied by continuous exhalation an ascent from a depth of 100 feet can be made during a period of twenty seconds without danger, although a similar ascent might be fatal from a depth of only 15 feet if the breath were held.

At present thousands of submarine personnel are trained without a single mishap. Every submarine that leaves port is now manned by a crew whose morale has been strengthened by training in the method of escape from disabled, sunken craft.

Clinically our interest in overdistention of the lungs centers in appliances designed to promote artificial respiration by periodic in-

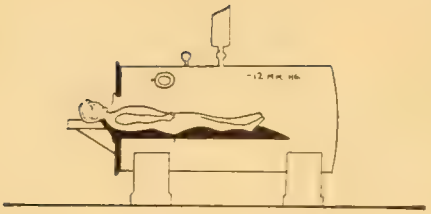


Fig. 6. This diagram illustrates the principle of Drinker and Emerson respirators.
From Behnke, A. R.: Certain Physiological Principles Underlying Resuscitation and Oxygen Therapy, Anesthesiology, 2:245-260 (May) 1941.

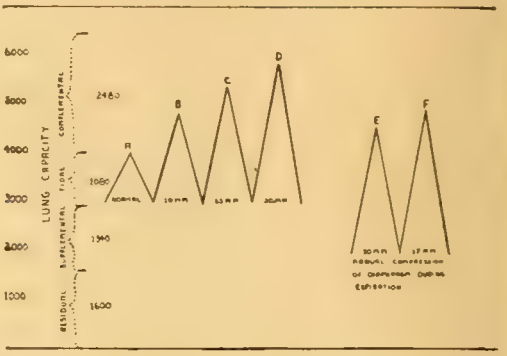


Fig. 7. The average values for the tidal air volume of seven healthy men.
A. The effect of positive pressure inflation for five seconds.
B. 10 mm. mercury pressure.
C. 15 mm. mercury pressure.
D. 20 mm. mercury pressure.
E. 10 mm. with subject on side and manual compression of diaphragm.
F. 15 mm. under same conditions.
From Behnke, A. R.: Certain Physiological Principles Underlying Resuscitation and Oxygen Therapy, Anesthesiology, 2:245-260 (May) 1941.

flation of the lungs. Insofar as expansion of the lungs is concerned there appears to be no difference between the effect of a decrease of pressure around the chest wall, as in the Drinker or Emerson respirator (fig. 6), and inflation of the lungs through a mask or catheter.

An essential consideration is the amount of pressure required for effective ventilation. The factor of pressure is of little significance when it is separated from the time factor. A pressure of 15 mm. mercury, for example, applied in alternate three second cycles will not produce the distention associated with the same pressure applied in six second cycles, although the total gas exchange is the same.

In tests performed on healthy men to determine the effective degree of inflation without overdistention of the lungs, it was found that pressures of 20 to 25 mm. of mercury applied alternately for periods of five seconds to induce respiration caused substernal distress, or the same sensation felt during rapid ascent with the submarine escape appliance. Pressures of 10 to 15 mm. of mercury, however, applied in alternate 5-second periods were well tolerated.

Figure 7 illustrates the tidal air volumes for normal breathing and those following mechanical distention of the lungs. Graphs E and F of figure 7 represent the increased effectiveness of pulmonary ventilation brought about by manual compression of the diaphragm during expiration when the subject was placed on his side. Compression of the diaphragm was not effective with the patient lying on his back.

In regard to the employment of negative pressure the question of injury to the lungs is paramount. Pressures of 9 mm. of mercury or less are well tolerated by healthy men. But the value of such pressure in promoting pulmonary ventilation is open to question, since expiration automatically follows pulmonary inflation. A beneficial effect on pulmonary circulation which remains to be demonstrated may accompany the pumping action.

It was suction or high negative pressure that produced the pulmonary edema and hemorrhage associated with the employment of the old pulmotor. It is obstruction of the tracheal airway by edema of the lining membrane that sets in operation a vicious cycle to transform respiratory effort into suction, so that the lungs are filled with fluid from the blood stream instead of air from the ambient atmosphere.

To counteract the tendency to edema Barach has employed positive pulmonary pressures of 5 to 8 cm. of water. It is this important therapeutic principle that can be utilized in the treatment of casualties from gas poisoning.

Pulmonary Gas Pressures

If the native diver returns to the surface the compressed air will leave the sinal and aural spaces and the diminished thoracic volume will return to its initial value. Symptoms referable to the ears and sinuses rarely attend rapid decompression. If mucus, how-

ever, prevents the egress of air from a frontal sinus, pain is again a concomitant symptom of the differential pressure, which, being greater in the air space, now acts to compress the lining membrane.

If decompression of the diver is continued further by a flight to high altitude it is observed that at a level of 5,000 feet pulse rate may increase slightly. During brief exposures, however, no real disturbances are to be anticipated until a "ceiling", usually in excess of 12,000 feet, is reached. In military aircraft oxygen would be inhaled, but since we are interested in physiologic responses, the diver will be taken to 18,000 feet, breathing air. This altitude is a critical level where the oxygen pressure is too low to support continued existence even in thoroughly acclimatized individuals, or to maintain the proper functional response necessary for the safe operation of aircraft.

Although the aviator may be on guard against untoward symptoms, the unsuspecting native diver will be unaware that he possesses faulty judgment and impaired neuromuscular coordination, especially if his mood becomes euphoric. The common anoxic symptoms of a darkening and narrowing of the field of vision and a feeling of cold may not disturb our now nonchalant diver.

The inhalation of oxygen, however, will tend to reverse the symptoms and restore the diver to normal well-being. Altitude ascent now may safely continue to 34,000 feet, equivalent to 0.25 atmosphere. The total gaseous pressure in the lungs, 190 mm. of mercury, will be the sum of the partial pressure of the three gases (water vapor, 47 mm. of mercury; carbon dioxide, 40 mm. of mercury; and oxygen, 103 mm. of mercury), or essentially the same corresponding gas pressures that exist in the lungs as we breathe air at normal pressure.

It is of interest that the replacement of air by pure oxygen is not attended at this reduced pressure by those toxic effects referable to the lungs and nervous system when pure oxygen is inhaled in the high pressure chamber. Our divers, insofar as the pulmonary gas pressures are concerned, are capable of carrying on the same type of respiratory function that attends the respiration of air at sea level.

Overdistention of Abdominal Viscera

At an altitude of 34,000 feet further ascent may be limited by previously compressed gases present in the stomach and large intestine which make their presence felt in no uncertain manner. Our native diver may be impelled to seek relief by way of a parachute descent.

An appreciation of the type of difficulty associated with gaseous distention is afforded by an experiment at ground level in which helium was introduced into the duodenum. It required two liters of retained helium to produce sensations similar to those sometimes encountered at a simulated altitude of 38,000 feet. Roentgenographic examination revealed the movement of the gas from the duodenum into the large bowel within a period of forty-five minutes.

A viscus distended with gas loses much of its functional motility. In distention of the stomach, for example, the cardiac and pyloric sphincters retain their gas-tight integrity to render an individual helpless and to create a condition of imminent rupture of the gastric wall. It is this fact that endows a seemingly innocent condition with distressing and fearful potentiality.

The visceral gas arises not primarily from the digestion of food, but from swallowed air. In the experimental development of helium-oxygen diving the project was almost abandoned before it was recognized that in the use of a mouthpiece for helium respiration large quantities of gas were swallowed. During decompression the rapid expansion of the ingested gas caused intense griping pain which at first was misinterpreted as a sign of compressed air illness. The substitution of a mask or helmet for the mouthpiece eliminated the excessive salivation and concomitant gas-swallowing.

Efforts toward the prevention of gaseous distention are directed largely to limitation of air swallowing and eating prior to flight. In this regard, without partiality, it can be stated that chewing gum and not tobacco is an offending agent.

Clinically gaseous distention following operative procedures is recognized as a distressing problem. One of the therapeutic measures recently advocated is the inhalation of oxygen. It is likely that the value of oxygen inhalation lies not so much in the elimination of gaseous nitrogen by way of the blood stream but rather in the fact that swallowing during oxygen inhalation introduces readily absorbed gas in contrast with

the accumulating nitrogen which depends for its elimination upon intestinal motility.

The Problem of Aero-Embolism

The more familiar phenomena resulting from compression and decompression are related to the formation of gas bubbles in the blood stream.

Robert Boyle (in 1670) first observed the tendency of bubbles to form in the blood during rapid decompression. He reported a remarkable observation—namely, the presence of a bubble in the eye of a viper subjected to low pressure. Boyle, moreover, outlined what appears to be the true nature of compressed air illness in the following statements quoted from the paper of Professor John Fulton:

"The little Bubbles generated upon the absence of the Air in the Bloud, juyces, and soft parts of the Body, may by their Vast number, and their conspiring distention, variously streighten in some places, and stretch in others, the Vessels, especially the smaller ones, that convey the Bloud and Nourishment; and so by choaking up some passages, and vitiating the figure of others, disturbe or hinder the due circulation of the Bloud!"

Boyle's observations apparently were not recalled at a later date when the maladies following exposure of divers and compressed air workers were explained on the philosophically plausible hypothesis that compression acted to squeeze blood into the interior of the body and that decompression was followed by an injurious reactive hyperemia.

Then Paul Bert, in 1878, with the perspicacity that distinguished the brilliant French scientists, presented experimental proof of the relationship between air embolism and decompression symptoms in his classic book, LA PRESSION BAROMETRIQUE.

The use of recompression in the treatment of compressed air illness is but the application of Paul Bert's theory. Perhaps no therapeutic procedure is more effective than recompression in the treatment of the asphyxiated, pulseless, cyanotic patient whose blood stream is filled with multiple gas emboli.

In anesthetized dogs rapidly decompressed the accumulation of gas bubbles in the right ventricle and pulmonary capillary bed is associated with rapid, shallow breathing, a fall in blood pressure, and a slow heart rate (fig. 8). The severity of the asphyxia is evident

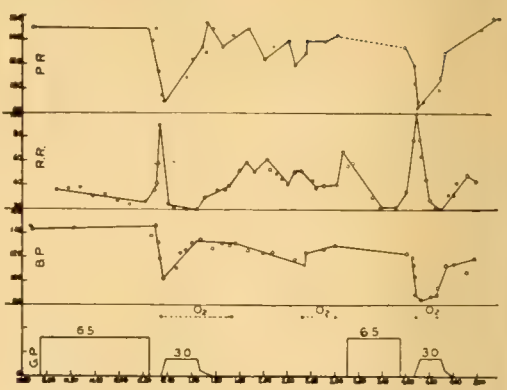


Fig. 8. Alterations in blood pressure, respiratory rate, and pulse rate of a dog decompressed in 10 seconds from a gauge pressure of 65 pounds after 1.5 hours' exposure, and then recompressed (after an interval of 10 minutes) to a pressure of 30 pounds (oxygen) for 25 minutes. Pressure was then lowered to atmospheric in 12 minutes, and oxygen inhalation continued for 17 minutes. Preceded by a period of oxygen breathing (30 minutes), compression of the dog was again carried out at a pressure of 65 pounds for a period of 45 minutes, followed by a 10-second decompression. After an interval of 12 minutes the dog was recompressed to a pressure of 30 pounds for 20 minutes (oxygen inhalation).

From Behnke and Shaw: Use of Oxygen in the Treatment of Compressed Air Illness, U. S. Nav. M. Bull. 35:61-73 (Jan.) 1937.

from analysis of the oxygen content of arterial blood, which may be reduced to one-third of the initial value. The belief that gas bubbles interfering with blood flow in the pulmonary vascular bed induce the asphyxia is substantiated by the disappearance of the symptoms during the period of recompression.

In man we may, with reasonable assurance, assume that the mechanism of "chokes" is the same as that which causes asphyxiation in the dog. The rapid, shallow breathing, sometimes mistaken as a symptom of oxygen poisoning, has been observed in the rapidly decompressed diver.

Not all "chokes", however, are severe, and a mild form is of especial interest. About ten years ago routine exposure in the high pressure chamber was not infrequently followed, after several hours, by the rather abrupt onset of substernal distress characterized by a sensation of dryness and burning that accompanied or induced a shallow type of breathing. Habitual smokers were unable to inhale tobacco smoke. Deep inspiration aggravated the distress and elicited the

cough reflex. This reflex has proved to be an early sign of incipient "chokes" or asphyxia, not only after diving decompression but in aviation during simulated rapid ascents to high altitude. The inhalation of oxygen at ground level, or recompression in a chamber relieves the symptoms.

Of interest is the fatigue, specific in character, that frequently follows compression. It may occur as the only symptom to indicate borderline cases in which bubbles presumably are present, but not in sufficient number to elicit the pain response. In association with "bends", fatigue may take the form of an exhausting malaise combined with chills, fever, and sweating.

Are these symptoms the result of products of anoxic tissue destruction brought about by the embolic ischemia?

Paralysis constitutes the most serious complication of compressed air illness. The manifestations in man are similar to those observed in dogs, and indicate ischemic involvement and necrosis, particularly of the thoracolumbar segments of the spinal cord.

Of the minor symptoms pruritis and rash are indicative of bubbles in the cutaneous vessels.

The general picture of widespread liberation and circulation of gaseous emboli is essentially a deprivation of blood supply to tissue. In no other way can the protean symptoms of compressed air illness be explained—symptoms which can be made to appear or disappear in response to the ambient pressure environment.

Clinical entities producing symptoms similar to those associated with widespread embolism are the systemic diseases such as syphilis which injure blood vessels and deprive tissues of blood supply. The rash of compressed air illness, for example, is frequently a copper colored, macular eruption. The symptoms of tabes dorsalis may be reproduced by the changes following decompression embolism affecting the areas of spinal cord with poor blood supply, predominantly those in the lower thoracic and upper lumbar portions.

Reichert and others described the condition of four patients with extensive arteriosclerosis of the lumbar segmental arteries who exhibited weakness of the thighs on exertion, not accompanied by pain and associated with normal pulsation of the femoral arteries. A similar syndrome was produced in dogs by ligation of the lumbar segmental arteries. Thus, interference with the blood supply to tissues by decompression embolism in young, healthy men simulates the symptoms associated with the aged or with individuals afflicted with arteriosclerosis and other forms of systemic vascular disease.

The incipient lesions incident to ischemia induced by decompression embolism fortunately disappear rapidly if blood supply is promptly restored by the application of adequate recompression.

Compressed Air Illness in Relation to High Altitude Flight

Of the factors involved in aerial supremacy the ability to reach and maintain high altitudes may be decisive. Not only have fighter aircraft climbed at the rate of a mile a minute to reach altitudes above 30,000 feet, but bombers also have attained altitudes beyond the reach of ground anti-aircraft batteries. In contrast to night saturation bombings carried out at comparatively low altitudes are the precise high altitude daytime operations of the American air fortresses—one of the most demoralizing methods of attack yet introduced into the war.

What of the individual who has been suddenly transferred from the normal pressure environment to the partial vacuum of the substratosphere? In effect he has been suddenly decompressed and it is not surprising that his symptoms appear indistinguishable from those experienced by the deep-sea diver who is decompressed too rapidly.

Some two years ago our deep-sea divers at the Experimental Diving Unit were subjected to a rapid rarefaction of air in the pressure chamber, simulating the aviator's flight into the substratosphere at the rate of 5,000 feet per minute. Above 27,000 feet the divers experienced the already familiar rash, fatigue, pain, and "chokes". To the divers there was no qualitative difference between the effects of too rapid decompression from a level of thirteen atmospheres and those changes brought about by the rapid, simulated altitude ascent, starting from a pressure of one atmosphere at ground level. The symptoms experienced at high altitude appear to be less severe, however, in that recovery is more prompt following descent.

Illustrative of the similarity of decompression symptoms, irrespective of the pressure

level, is the history of one individual who in 1933, following exposure to high pressures, felt a dull, aching type of pain in the deltoid area of the right arm accompanied by substernal distress which elicited the cough reflex on deep inspiration. In 1940, identical symptoms were manifest in the same individual following too rapid simulated altitude ascent to 38,500 feet.

Again, during one week a diver decompressed too rapidly from a pressure level of thirteen atmospheres (equivalent to a diving depth of 400 feet) was temporarily incapacitated by pain and swelling of both ankles. A dorsal pedal vein in one foot was distended, presumably because of the blockage of blood flow by gas bubbles. Prolonged recompression effected complete recovery. The following week the same diver, after rapid decompression from the normal barometric pressure to a simulated altitude of 38,000 feet, developed the same incapacitating ankle pain of the previous week.

Another diver who, during the course of several years of experimental diving, had been the only individual to escape "bends", developed "chokes" at a simulated altitude of 40,000 feet.

Finally, the irritability and fatigue that accompany too frequent exposure in compressed air are exhibited by those attendants who work too often either in the low or high pressure atmosphere.

With reference to the more rapid recovery characteristic of descent from high altitudes, it is probable that the greater water vapor and carbon dioxide content of the bubbles is responsible for the more rapid resolution of gas and disappearance of the obstructing emboli. On recompression the carbon dioxide and the water vapor would be expected to redissolve more rapidly than the more slowly absorbed nitrogen. Yet bubbles have not been demonstrated within the vascular beds and tissues of men subjected to high altitudes, and similar symptoms may not mean similar cause.

The removal of molecular nitrogen from the tissues of the body by oxygen inhalation prior to altitude flights or at the lower altitudes renders susceptible individuals resistant to decompression maladies which otherwise would bring about incapacitation during high altitude flying. This phenomenon constitutes the essential link in the proof that air embolism underlies the etiology of the decompression symptoms at high altitude. The rationale of nitrogen removal serves as an example of the value of physiologic principles as applied to naval operations.

Summary

Entrance into the pressure chamber reveals a physiologic world that in some respects presents the incongruity of the experiences of Alice in Wonderland. The phenomena, however, can be grouped into a rough pattern. Pressure alterations *per se*, equally distributed on all parts of the body, are innocuous in the range of sixteen to one-sixth atmospheres. If the pressure is unequally distributed tissues are squeezed to produce edema, hemorrhagic extravasation, and pain. For the production of these symptoms the pressure difference need not be more than 50 mm. of mercury.

The more profound disturbances associated with pressure alterations are related to the properties of gases. Under high pressures benign atmospheric nitrogen becomes a narcotic substance and vital oxygen is transformed into a convulsive agent.

During and following rapid decompression, gases in the lungs and alimentary tract expand to produce symptoms dependent upon the resultant overdistention. In the blood stream the dissolved gases may be liberated to form emboli which serve to explain the mutual symptoms of pain, asphyxia, irritability and fatigue affecting both the deep sea diver and the aviator.

Clinically, the pressure forces properly controlled have served to maintain respiration and to improve circulation. Further developments look to the employment of the pressure chamber not only as a diagnostic mechanism but also as an adjunct to promote ventilation and drainage in the treatment of aural, sinal and pulmonary infections. When these procedures are put into effect, military ecologic practice will have made a contribution to clinical medicine.

The third lecture in this series will be published in the April issue of the **North Carolina Medical Journal.**

Private initiative is responsible for America's world leadership in science and industry. The tremendous effort that is being put forth in the United States, the effort that will win the war, is the work of private initiative.—Dr. Gustav Egloff: Peacetime Values From a War Technology, Science 97:102 (Jan. 29) 1943.

THE HORMONAL APPROACH TO CARCINOMA OF THE PROSTATE

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PART I: HORMONES AND THE PROSTATE

The interrelationship of the testes, prostate and pituitary glands has long been recognized. Changes in the physiology of one cause alterations in the others, and these changes are evidenced by physiologic and anatomic variations in the individual. These glands are bound closely together by a mutual interdependence. Admittedly, there has been considerable conflicting evidence in experimental data on their hormonal relationships, but it is now generally recognized that hypophysectomy causes prostatic atrophy and that the injection of the anterior lobe hormone, antuitrin S, in the normal male causes prostatic enlargement. This atrophy after hypophysectomy may be prevented, however, by the administration of testosterone[1]. The pituitary gland normally is held in check by the gonadal hormones, and if the gonads are removed the pituitary becomes overactive. It is theorized that the male gonadal secretion contains two hormones—one, called "inhibin", which holds the pituitary in check and, therefore, prevents the over-stimulation of the prostate; and a second, an androgen, which is the true sex hormone. It maintains the prostate and may cause prostatic hyperplasia. It is reasonable, therefore, to assume that dysfunction of either of these hormones may cause prostatic enlargement. It is also known that large doses of testosterone will not prevent the over-action of the pituitary gland. Therefore, it is theoretically unsound to administer, therapeutically, testosterone for prostatic hypertrophy. This mutual interdependence and interrelationship of these three glands still needs experimental investigation.

Androgens and the Prostate

The relationship between the testes and the prostate has been the subject for much experimentation and dispute. In 1893 White pointed out that prostatic atrophy follows castration. At that time oophorectomy was the accepted treatment for myoma of the uterus and White applied this principle to analogous conditions of the prostate. He claimed that 87 per cent of his patients with prostatic enlargement were improved by castration. Others, however, did not report such encouraging results. Experimentally there has been conflicting evidence. Deming, Jenkins and Van Wagenen[2] could find no evidence in the rat of prostatic atrophy after castration. One of their patients with benign prostatic hypertrophy was a man who had had both testes destroyed accidentally in his youth. This condition, however, is rare, as most eunuchs have small, soft, atrophic prostates, even in old age. Krichesky[3] has recently shown by the use of intra-ocular prostatic implants the relationship between the prostate and the testes. He concludes that the same result is obtained in his implants by castration or injection of testosterone. In prostatectomized castrated animals the injection of testosterone causes rapid and continued growth of the implant, while in prostatectomized animals with testes the injection causes only a slight temporary rise and then a continual decrease in size of the prostatic implants. This suggests that the testes secrete a hormone which inhibits the action of the androgen on the prostate. Whether this action is direct or indirect through the hypophysis is not shown. This falls in line with Lower's theory of inhibin. The relation of age to male hormonal secretion has been investigated by many. Womack and Koch[4] and others have shown that in boys under 10 years of age there is no male hormonal secretion found in the urine; between the ages of 20 and 40 there is the greatest amount; between 40 and 60 there is just half as much as in the preceding group; and after 60 years there is very little. Huggins and Clark[5] have shown that castration produces atrophy of the normal prostate of dogs. It also causes

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From the Urologic Division, Department of Surgery, Duke University Medical School and Duke Hospital.

1. Walsh, E. L., Cuyler, W. K., and McCullagh, D. R.: The Physiologic Maintenance of the Male Sex Glands, Am. J. Physiol. 107:508-512 (Feb.) 1934.
2. Deming, C. L., Jenkins, R. H., and van Wagenen, G.: Further Studies in the Endocrinological Relationships of Prostatic Hypertrophy, J. Urol. 34:678-685 (Dec.) 1935.
3. Krichesky, B., et al: Endocrinologic Studies on the Prostate Gland in the Male Rabbit, J. Urol. 46:303-318 (Aug.) 1941.
4. Womack, E. B., and Koch, F. C.: Testicular Hormone Content of Human Urine, Endocrinology 16:273-277 (May-June) 1932.
5. Huggins, C., and Clark, P. J.: The Effect of Castration and of Estrogen Injection on the Normal and on the Hyperplastic Prostate Glands of Dogs, J. Exper. Med. 72:747-762 (Dec.) 1940.

atrophy in prostatic hyperplasia, but this may not become apparent until three months after castration. They feel that this apparent discrepancy in their findings from those of others is dependent upon the fact that it takes three months for the epithelial atrophy to become evident. Perhaps others have not carried their experiments long enough for this atrophy to become evident. They have shown that prostatic epithelium is under the control of the testes[6]. If these are true facts, injection of the male hormone in prostatic hypertrophy is certainly contraindicated.

Estrogens and the Prostate

The effect of the female sex hormones on prostatic hypertrophy has been investigated by many. Zuckerman and others have demonstrated that the male secretes both androgenic and estrogenic hormones in the urine. There is a balance between the two in every male. If the estrogen is withdrawn, as perhaps it is in old age, the androgen is not kept under control and its preponderance stimulates the pituitary to over-secretion of its hormone, which in turn causes prostatic enlargement. Thus the enlargement is caused by the deficiency of one of the hormones and a consequent relative increase in the other, its antagonist. Wugmeister in 1937 reported marked improvement in 23 cases of benign prostatic hypertrophy treated with estrogen. He theorized that the female hormone is present in every male but is withdrawn in later life. The individual, either male or female, tends toward hypervirilization. The pituitary, no longer inhibited by the estrogen, begins over-production of gonadotropic hormones which stimulate the genital glandular apparatus. The glandular tissue responding most actively to this stimulation is the peri-urethral glands, which have remained embryologically at an inferior stage of evolution. Kahle and Maltry[7] had results similar to those of Wugmeister in patients on stilbestrol therapy. Huggins[5] has induced prostatic atrophy in dogs by injections of stilbestrol. However, an overdose may cause metaplasia and enlargement. On this subject reports have been conflicting, one group of experimenters finding a decrease and another group an increase in the size of the prostates of different animals given estrogenic injections. Geschickter said that a moderate dose caused enlargement of the prostate while a large dose caused atrophy. The differences reported may also be dependent upon the various animals used for experimentation.

Castration and Carcinoma of the Prostate

While there is some question as to the result of castration in benign prostatic tumors, there is no doubt at all that it causes atrophy of the prostatic epithelium in carcinoma of the prostate. Huggins[5], Gutman[8], Gomori[9] and others have shown that carcinoma of the prostate is a tumor of adult prostatic epithelium by the similarity in the staining reactions and the high tissue acid phosphatase in each. In primitive prostatic epithelium, on the other hand, there is very little acid phosphatase. Acid phosphatase may be considered, therefore, as an index of adult prostatic epithelial activity.

The endocrine control of adult prostatic epithelium is best shown by the withdrawal or neutralization of the androgens by castration or stilbestrol. Since 1896 the relationship between carcinoma of the breast and the endocrines has been known. Oophorectomy was beneficial, particularly in the carcinomas with osseous metastases. Recently Woodard and Higinbotham[10] have shown that testosterone or estrone causes stimulation of neoplastic growth in carcinoma of the breast, with metastases and increased bone destruction. The products of these osteolytic changes are evidenced in the blood by the elevation of the serum calcium. The androgenic relationship of the phosphatase is not the same in carcinoma of the breast and carcinoma of the prostate. There is now abundant evidence that removal or neutralization of the androgen causes rapid and marked atrophy of the adult epithelium of prostatic carcinoma.

In our series[11] of forty patients who had been castrated, almost every prostate showed

6. Huggins, C., and Stevens, R. A.: The Effect of Castration on Benign Hypertrophy of the Prostate in Man, J. Urol. 43:705-714 (May) 1940.
7. Kahle, P. J., and Maltry, E.: Treatment of Hyperplasia of the Prostate with Diethylstilbestrol and Diethylstilbestrol Dipropionate, New Orleans M. & S. J. 93:121-131 (Sept.) 1940.
8. Gutman, E. B., Sproul, E. E., and Gutman, A. B.: Significance of Increased Phosphatase Activity of Bone at the Site of Osteoplastic Metastases Secondary to Carcinoma of the Prostate, Am. J. Cancer 28:485-495 (Nov.) 1936.
9. Gomori, G.: Distribution of Acid Phosphatase in the Tissues Under Normal and Under Pathologic Conditions, Arch. Path. 32:189-199 (Aug.) 1941.
10. Woodard, H. Q., and Higinbotham, N. L.: Correlation Between Serum Phosphatase and Roentgenographic Type in Bone Disease, Am. J. Cancer 31:221-237 (Oct.) 1937.
11. Alyea, E. P., and Henderson, A. F.: Castration for Carcinoma of the Prostate, J. Urol. 48:673-681 (Dec.) 1942.

marked atrophy and softening. So marked was the change that many cases could not have been diagnosed as carcinoma by rectal examination four months after operation. Two of seven patients with acute retention had already had a suprapubic cystotomy for relief. The glands of all seven atrophied to such an extent that their retention was completely relieved and the two suprapubic sinuses healed. The latter fact, particularly, shows that all obstruction must have been removed. Rectal examination corroborated this assumption. Since castration was the only therapy in these 7 cases, the relief of the obstruction must have been dependent upon the removal of the androgens.

This definite relationship between androgens and carcinoma of the prostate has stimulated investigation of the true male hormones in the urine. Both androgens and estrogens are present in the human urine. It was thought that the 17-ketosteroid was the male hormone. Estrogens giving the reaction of these steroids are usually found in the phenolic fraction and androgens in the neutral fraction. Assays of these substances in the urine are taken as an index of the presence of the androgens. These are not altogether reliable, for some 17-ketosteroids in the neutral fraction have no androgenic properties in biological assays. Therefore, a quantitative determination of the 17-ketosteroids in the urine is not a true index of the quantitative androgenic hormone in an individual.

If benign prostatic hypertrophy is caused by an abnormal ratio of the estrogens and androgens, this abnormality should be demonstrated by a determination of these substances in the urine of patients with this condition. Satterthwaite and his co-workers[12] and Miller[13] have determined the 17-ketosteroids in the urine of normal old men and in that of men with benign and malignant tumors of the prostate. They found no consistent difference in the three groups. Furthermore, it has been demonstrated that the testes are not the only source of the 17-ketosteroids. They are also secreted by the adrenals. This fact is evident after castration. Satterthwaite found a decrease after castration, but others have found a temporary drop followed by a rise, which in some cases surpassed the precastration level. These 17-ketosteroids must have been produced by extragonadal sources. Scott and Vermeulen[14] found that the urinary hormonal levels are the same in a normal male, in patients with carcinoma of the prostate, and in eunuchs. After castration there is a temporary fall of these hormones, then a rise to precastration levels. We must conclude, therefore, that castration causes primary gonadal insufficiency, but only moderate changes in the urinary excretion of the gonadotropins, androgens or estrogens. Hence, a determination of these hormones in the urine cannot be regarded as evidence of functional capacity of the gonads.

A most interesting and curious syndrome has been described in the foreign literature. In 1925 Corda[15], and a year later Silvestrini[16], described gynecomastia and atrophy of the testes in patients with extensive or chronic disease of the liver. Corda implied that this syndrome was in some way dependent upon the endocrines. Zondek[17] in 1934 introduced the theory that the liver inactivates the female sex hormones. Glass et al[18] stated that there is now ample experimental proof of such a mechanism. They studied fourteen males with primary chronic liver disease; eight had gynecomastia, and all had testicular atrophy. According to them, most investigators have found little free androgen or estrogen in *normal* urine. Hence, the recovery of these sex steroids in the free rather than in the combined form may be considered as evidence of liver failure to inactivate these compounds. They found low androgens in all of the 14 cases of cirrhosis. In 8 patients they recovered the free estrogen in the urine. This, they think, indicates that inactivation did not take place. The greatest importance is placed upon the fact that the estrogens were found, in the cases of cirrhosis of the liver, in the free form. Thus, in

12. Satterthwaite, R. W., Hill, J. H., and Packard, E. F.: Experimental and Clinical Evidence on the Role of the 17 Keto-Steroids in Prostatic Carcinoma, J. Urol. 46:1149-1153 (Dec.) 1941.
13. Miller, M. L.: Neutral Steroids in the Urine of Individuals with Benign Hypertrophy of Prostate, J. Urol. 47: 846-851 (June) 1942.
14. Scott, W. W. and Vermeulen, C.: Excretion of 17 Ketosteroids, Estrogens and Gonadotropins Before and After Castration, J. Clin. Endocrinol. 2:450-456 (July) 1942.
15. Corda, L.: Sulla c. d. reviviscenza della mammella maschile nella cirrosi epatica, Minerva med. 5:1067-1069 1925.
16. Silvestrini, R.: Gynecomastia in Men with Cirrhosis of the Liver, Riforma med. 42:701-704 (July 26) 1926.
17. Zondek, B.: Ueber das Schicksal des Follikelhormons (Follikulin) im Organismus, Skandinav. Arch. f. Physiol. 70:133-167, 1934.
18. Glass, S. J., Edmondson, H. A., and Soll, S. N.: Sex Hormone Changes Associated with Liver Disease, Endocrinology, 27:749-752 (Nov.) 1940.

this active biologic form they can be more potent in relatively lower concentration.

Wu[19] has undertaken a morphologic study of the prostates of patients with cirrhosis of the liver in an attempt to show characteristic changes due to estrogenic preponderance. In a small series he found a higher incidence of nodular hyperplasia and delayed involution in elderly patients suffering from cirrhosis of the liver. These findings are all evidence of estrogenic preponderance and suggest that the diseased liver is unable to inactivate the estrogens. If this is so, then, in the light of the new estrogenic therapy for carcinoma of the prostate, should there not be a lower incidence of this malignancy in old men with cirrhosis of the liver than in those with normal livers which inactivate the estrogens? This possibility will be investigated.

Phosphatase and Carcinoma of the Prostate

The previously mentioned investigations of Huggins have stimulated further studies of the relationship of the phosphatase enzymes to prostatic tumors. In 1912 Grosser and Husler[20] discovered an enzyme capable of hydrolizing phosphoric esters. There are many of these esters which have real significance in the metabolic processes of the body. The only two with which we are concerned in this paper are the alkaline phosphatase, most active in a medium with a pH of 9, and the acid phosphatase, most active in a medium with a pH of 5. According to Woodard[21], normal bone produces an enzyme which permits the organic phosphorus compounds to produce a local excess of inorganic phosphate, for deposition as calcium phosphate. Some bone tumors contain little or no phosphatase and therefore lack the ability to lay down calcium phosphate. Irradiation of the epiphyses inactivates the phosphatase producing mechanism.

In 1923 Robinson[22] discovered that the alkaline phosphatase was particularly active in growing bone and cartilage. Growing bone contains ten times as much phosphatase as adult bone; and the enzyme activity affords a good index of the rate of growth. This phosphatase is found also in many body tissues, particularly the kidneys and intestinal mucosa. In certain conditions—namely, obstructive jaundice and bone diseases, particularly giant cell tumors, osteitis deformans, osteoporosis, rickets, hyperparathyroidism, and osteogenic sarcoma it is markedly elevated in the blood serum.

Acid phosphatase, which is most active in an acid medium with a pH of 5, has been demonstrated histochemically by Gomori[9], in fairly large amounts in the spleen, smaller amounts in the liver, intestines, kidneys and adrenals, but in greatest amount in adult prostatic epithelium. The exact role of this enzyme in the prostate is not known, but it appears normally in prostatic fluid. Scott and Huggins[23] have reported that a high urinary acid phosphatase depends upon its admixture with prostatic secretion, and may be considered an index of the secretion, and hence also of prostatic activity. Sullivan and his co-workers[24] have given us a most excellent comprehensive study of the theory and application of this enzyme. They assume that its secretion is one of the functions of the prostate gland in man and monkeys, but not in other animals. The normal amount in the adult human prostate varies from 500 to 2,500 King and Armstrong units per gram of tissue. It has been shown by staining *in situ* and by chemical determination that acid phosphatase is abundant in adult type prostatic epithelium and scant in primitive type epithelium. Since it is most abundant in the glandular epithelium of patients with carcinoma of the prostate, it is assumed that this tumor is one of adult type epithelium. Further, since it does not appear in these prostatic cells until maturity, it may be taken as an indication of physiological maturity of the prostate gland. Gutman, Sproul and Gutman[8] have shown that there is a very high content of acid phosphatase in the metastatic lesions of prostatic cancer, particularly in the bone metastases. Later Gutman and Gutman[25] demonstrated an increase in the

19. Wu, S. D.: Anatomic Changes in the Prostate of Patients with Cirrhosis of the Liver. Arch. Path. 34:735, 1942.
20. Grosser, P., and Husler, J.: Ueber das Vorkommen einer Glycerophosphotase in tierischen Organen. Biochem. Ztschr. 39:1-5, 1912.
21. Woodard, H. Q., and Higinbotham, N. L.: Serum and Tissue Phosphatase Determinations as an Aid in Evaluating the Radiation Therapy of Bone Tumors. J.A.M.A. 116:1621-1627 (April 12) 1941.
22. Robinson, R. and Soames, K. M.: The Possible Significance of Hexosephosphoric Esters in Ossification. Bio-Chem. J. 17:286, 1923.
23. Scott, W. W. and Huggins, C.: The Acid Phosphatase Activity of Human Urine, an Index of Prostatic Secretion. Endocrinology 30:107-112 (Jan.) 1942.
24. Sullivan, T. L., Gutman, E. B., and Gutman, A. B.: Theory and Application of the Serum Acid Phosphatase Determination in Metastasizing Prostatic Carcinoma: Early Effects of Castration. J. Urol. 48:456-458 (Oct.) 1942.
25. Gutman, A. B., and Gutman, E. B.: An "Acid" Phosphatase Occurring in the Serum of Patients with Metastasizing Carcinoma of the Prostate Gland. J. Clin. Investigation 17:473-478 (July) 1938.

serum acid phosphatase of patients with metastatic carcinoma of the prostate. There are both alkaline and acid phosphatases in the serum of patients with metastases from prostatic carcinoma. In primary bone tumors the enzyme comes from the activity of the tumor itself. Therefore, if it is removed or irradiated, the serum phosphatase will drop. But in tumors of the soft parts which metastasize to bone, the enzyme comes from the defense, or bone, reaction to the tumor[26]. Hence, in carcinoma of the prostate where there is marked osteoplastic reaction to the tumor, the acid phosphatase is most active and elevated in the serum. The more osteoplastic the tumor, the higher is the serum acid phosphatase. In osteolytic lesions, however, the acid phosphatase rises only slightly.

The lack of agreement among investigators as to the normal level of serum acid phosphatase has lead to a great deal of confusion in the interpretation of clinical results. Sullivan, Gutman and Gutman[24] point out that the differences in laboratory techniques probably account for a good deal of this apparent discrepancy in values. The King and Armstrong method[27] is now probably the most widely accepted technique. Blood specimens must be examined fresh and not be allowed to stand at room temperature more than thirty minutes. Hemolyzed sera will give an abnormally high phosphatase. The variation in length of time of incubation also causes variation in the phosphatase value. The Gutmans chose three units as the highest level for normal, Herger[28] selected four units, and Huggins[29] ten units as the definite diagnostic dividing line.

In a series of 130 cases of carcinoma of the prostate with metastases Sullivan and Gutman[24] found that 85 per cent had serum acid phosphatase over 3 units, 75 per cent over 6 units, 50 per cent over 10 units. Of 240 patients with neoplasms other than carcinoma of the prostate, none had a phosphatase over 5 units. Of 85 patients with diseases of the prostate other than carcinoma, none had elevated acid phosphatase. In a control group of 570 patients with no prostatic disease 75.5 per cent had a serum acid phosphatase below 5 units. Herger and Sauer[28] reported that all of 283 controls had a serum acid phosphatase below 6 units. In 147 cases of carcinoma of the prostate, the serum acid phosphatase in 77 was below 4 units, and in 22 between 4 and 6 units. In 39 cases with metastasis to the bone 4 patients had a serum acid phosphatase below 4 units, 2 between 4 and 6 units, and 33 over 6 units. In our clinic, 5 units was chosen as the border line, and anything above that is considered as elevated and suggestive of carcinoma of the prostate. It is the general consensus of opinion that any value below 3 units is negative, that 3 to 6 units is suggestive, 6 to 10 units highly suggestive, and over 10 units almost certainly diagnostic of carcinoma of the prostate. It is thought that the tumor cells must escape outside the prostate itself and get into the circulation in order to cause a significant rise in the serum acid phosphatase. Sullivan and Gutman[24] have noted a normal phosphatase in a patient who at autopsy showed prostatic carcinoma with extension into the capsule, neural sheaths and perineural lymphatics. There was no further involvement or extension into the circulation of this patient, and his serum acid phosphatase was only 2.4 units.

The variations in the enzyme activity in metastasizing carcinoma depend upon "how prolifically the tumor elaborates the enzyme."[29] There are some cases reported in our series which did not show elevation of serum acid phosphatase on the first determination, but with further extension of metastases there was a gradual rise. These will be discussed in Part II of this paper. A certain percentage of cases of carcinoma of the prostate with metastases also fail to show the anticipated rise in serum acid phosphatase. No explanation is offered for this group at present. In an attempt to discover whether carcinoma of the prostate had metastasized in some of their cases with equivocal phosphatase values, Sullivan and Gutman[24] used a provocative test, as suggested by Huggins. Injection of androgen causes prostatic epithelial activation and a rise in the serum acid phosphatase if metastases are present. In some of their equivocal cases they produced the anticipated rise in serum phosphatase. There was no change in their control series of patients

26. Woodard, H. Q., Twombly, G. H., and Coley, B. L.: A Study of the Serum Phosphatase in Bone Disease, J. Clin. Investigation, 15:193-201 (March) 1936.
27. King, E. J., and Armstrong, A. R.: A Convenient Method for Determining Serum and Bile Phosphatase Activity, Canad. M. A. J. 31:376-381 (Oct.) 1934.
28. Herger, C. C., and Sauer, H. P.: Further Observation on Serum Acid Phosphatase Activity in Carcinoma of the Prostate, Cancer Research 2:398-400 (June) 1942.

with prostatic hypertrophy given the injection of testosterone.

Removal of Androgen and Serum Acid Phosphatase

Huggins and Hodges[29] have demonstrated that a decrease in serum acid phosphatase in metastasizing carcinoma of the prostate can be brought about by removal of the androgen, by castration, or by neutralization with estrogen. They also showed a rise in the serum acid phosphatase with the injection of the androgen. This experience has been confirmed in our cases[11]. In all of those patients with elevated acid phosphatase the level dropped to nearly normal and in those with normal amounts the level dropped still lower after castration or administration of stilbestrol. A few castrated patients, who, several months later, showed a spread of the disease and a rise of the acid phosphatase, were given stilbestrol, and the anticipated fall recurred. Theoretically, it is reasonable to assume, as has been suggested by Huggins, that the patients failing to respond or responding only temporarily may have excess secretion of extragonadal androgen, such as may be put out by the adrenals. This can be measured by the determination of the serum acid phosphatase. This chemical test is, therefore, of prognostic aid and a guide to therapy.

Sullivan, Gutman and Gutman[24] have shown that the fall in the acid phosphatase is rapid, 70 per cent occurring within the first week after castration. They also found a slight rise in the serum alkaline phosphatase two weeks following castration, and then a gradual fall to nearly normal levels.

This relationship between androgen, adult prostatic epithelium activation, and acid phosphatase is of the greatest significance. It is direct evidence of the relation of hormones to malignancy and may have far reaching results in the future. At present it is of the greatest value therapeutically in the care of patients with carcinoma of the prostate. A clinical report of our results with this therapy will constitute Part II of this study.

Summary

1. Hypophysectomy causes prostatic atrophy.
2. This atrophy may be prevented by testosterone injection.
3. Injection of antuitrin S causes prostatic enlargement if the testes are present.
4. Testicular hormone contains:
   a. "Inhibin", which holds the pituitary in check.
   b. Androgen, which maintains the prostate and may cause hyperplasia.
5. Castration will cause prostatic atrophy in the normal male.
6. Castration may cause atrophy of prostatic hyperplasia, although this is not definitely proved as yet.
7. Adult prostatic epithelium is under control of the testes.
8. Castration always causes atrophy of the adult prostatic epithelium of carcinoma of the prostate.
9. An imbalance of the estrogens and androgens may be the cause for prostatic enlargement.
10. Estrogenic therapy may cause atrophy of prostatic hyperplasia.
11. Estrogenic neutralization of the androgens causes atrophy of the adult prostatic epithelium of prostatic cancer.
12. The quantitative determination of 17-ketosteroids in the urine is not a true index of androgenic hormones of the individual.
13. Studies of cirrhosis of the liver seem to suggest that the liver inactivates the estrogens.
14. Acid phosphatase is found most extensively in adult prostatic epithelium and in cells of carcinoma of the prostate.
15. Serum acid phosphatase is elevated in metastatic carcinoma of the prostate.
16. Serum acid phosphatase rises with prostatic epithelium activation and falls with its inactivation.
17. Castration or neutralization of the androgens by estrogens causes a fall in the serum acid phosphatase.

29. Huggins, C., and Hodges, C. V.: The Effect of Castration, of Estrogen and of Androgen Injection on Serum Phosphatases in Metastatic Carcinoma of the Prostate, Cancer Research 1:293-297 (April) 1941.

Gastrointestinal Upsets in Patients Taking Insulin.—Gastrointestinal upsets often are the precursors of a reaction. During such episodes, patients should always take some carbohydrate at frequent intervals, electing the form that can best be retained—tea or coffee with sugar, milk and Vichy water, ginger ale or similar preparations.—Elliott P. Joslin: Diabetic Hazards, New England J. Med. 224: 590 (April 3) 1941.

INFECTIOUS DISEASES OF THE HEART

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Infectious diseases of all kinds cause changes in the circulation which may be noted as abnormalities in the heart beat; infections of the heart itself produce manifestations varying with the portion of the heart involved. Pathologic changes in the myocardium usually result in acute symptoms associated with myocardial failure. Acute infection involving the endocardium causes few immediate symptoms; most of those which are seen are the result of late mechanical disturbances to the flow of blood through the heart. The symptoms and physical signs will depend upon the heart valve affected. For instance, changes are seen first in the peripheral circulation when the aortic valve is scarred; changes may be noted first in the lungs when the mitral valve is narrowed. Infections involving the pericardium cause few symptoms except pain in the acute stage, unless there is effusion, in which case the signs of mechanical obstruction to the venous return become evident. Late effects produced by scarring give mechanical changes with a resulting constriction of the pericardium about the great vessels, or symptoms of diminished output if the constriction is around the ventricle.

It is perhaps better to consider the infections from an etiological than from a pathological viewpoint, since the prognosis and treatment will be more greatly affected by the former factor.

1. *Rheumatic fever.* The most important infectious disease of the heart is rheumatic fever. The disease rarely, if ever, occurs before the age of 2 years and is rare before the age of 5 years, but in the group under 20 years of age rheumatic fever comprises nearly 95 per cent of all infectious diseases involving the heart. In children it is generally true that the heart is involved more seriously than are the joints, while in the older age group the joints are more frequently involved than is the heart. We should recall that rheumatic fever is a generalized infection involving chiefly connective tissue wherever it may be found.

The etiology is still obscure. The occurrence of rheumatic fever following upper respiratory infections has led many observers to suspect a connection with bacterial infections of the upper respiratory tract. The presence of antibodies against the hemolytic streptococcus has been repeatedly demonstrated in patients with rheumatic fever, but this is certainly no proof that the disease is caused by this organism. Alpha hemolytic streptococci can be cultured from the blood stream of patients with rheumatic fever, if cultures are taken frequently enough and with large enough quantities of blood; but this organism may also be recovered from the blood of patients who have nothing more serious than pyorrhea if the cultures are taken while such patients are simply chewing paraffin. The flare-up of rheumatic symptoms seven to ten days after respiratory infections has suggested to many people that the disease represents an allergic response to some common organism or group of organisms. A virus has been postulated as the possible etiologic agent, but none has been constantly recovered. The frequent occurrence of rheumatic fever in tall, thin, blue-eyed, freckle-faced, red-headed individuals, and the tendency to repeated attacks in the same patient suggest a definite susceptibility on the part of certain individuals to the so-called "rheumatic state".

The disease may affect primarily the myocardium, in which case the only physical sign in the heart may be a muffled first sound, suggesting an increased P-R interval, which can be demonstrated by the electrocardiogram. The endocardium may be involved and the lesions may remain unsuspected until sufficient distortion of the valve has occurred to produce the tell-tale murmurs. The pericardium is almost always affected at some time during the course, but this lesion may be overshadowed by the involvement of the myocardium and endocardium. Involvement of the connective tissue around the joints may result in the familiar rheumatic nodules of the tendon sheaths seen most commonly around the elbows, or involvement of the pleura or the peritoneum may give a true rheumatic pleurisy or peritonitis. The incidence of the disease apparently is greatest in those climates where the weather is

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damp and cold, for the occurrence of rheumatic lesions at autopsy progressively diminishes in frequency from Boston to Baltimore and is lowest in New Orleans. Symptoms at this latitude may be mild and fleeting and the diagnosis may be difficult to establish during the acute stage. The white blood cell count, differential count, sedimentation rate and electrocardiogram are the only laboratory tests which will offer much help in making the diagnosis. In nearly all cases of rheumatic fever and in about half of all cases of chorea of rheumatic origin the heart is affected.

Since the etiologic agent is unknown, treatment must be entirely symptomatic. Salicylates in adequate dosage control the pain and reduce the fever but do not stop the underlying pathologic process. Salicylates tend to control exudation but not the proliferative lesions, so that in spite of the subsidence of symptoms the patient should stay quiet until objective laboratory evidence of activity of infection is no longer present. The sulfonamides have not proven effective in the treatment or prophylaxis of the disease. Removal to a warmer climate will often alleviate an attack and lower the incidence of recurrences.

2. *Syphilis.* In Negroes 25 to 30 per cent of all infectious diseases of the heart are due to syphilis. Males are more frequently affected than females. Syphilis is a septicemia in the early stage, and it is probable that the heart is involved to some extent in nearly all cases. The demonstration of the spirochetes in the myocardium is extremely difficult, however, except in the cases of congenital infection, where there may be myriads of organisms readily stainable in and between the myocardial fibers. The cardiac lesions seen in adults are found in the tertiary stage of the disease. Syphilis causes predominantly destruction of the media of arteries. The most common site of involvement in the heart is the aortic valve, and the development of the familiar separation of the cusps at their attachment results in insufficiency. There may be a diffuse inflammatory myocarditis, or more rarely, gummatous myocarditis, but some pathologists question the existence of these conditions. If the involvement of the media occurs near the mouth of the coronary arteries, the stage is set for the development of a therapeutic paradox in which there may be apparent improvement from vigorous initial therapy, but as treatment continues and healing progresses with scarring, the mouths of the coronaries become constricted and the patient develops signs of coronary insufficiency. If involvement of the heart is suspected, great care should be taken to initiate therapy with heavy metals and iodides and to continue this treatment for months before the arsenicals are started. The electrocardiogram may be helpful in detecting fibrosis by indicating disturbances in circulation to the heart.

3. *Toxins.* The heart may be affected severely as the result of damage from a circulating toxin produced by infection elsewhere in the body. The most frequent occurrence is in diphtheria. The patient usually is in the convalescent stage on the tenth or twelfth day after subsidence of the fever. The first physical sign noted may be a tachycardia with dilatation of the heart. Pathologically, there may be an acute myocardial necrosis with rapid or sudden death, but more frequently there is auriculoventricular or intraventricular block, which may be suspected from the muffled character of the first sound, indicating a delayed P-R interval, and which can be determined readily by an electrocardiographic tracing. The tachycardia is thought to be due to vagal and splanchnic paralysis caused by the circulating toxin. This infectious cause of damage to the heart should disappear, because the disease is preventable by proper prophylactic immunization and the myocardial lesions are preventable if adequate antitoxin therapy is instituted immediately on making the diagnosis. As a rule recovery from the myocarditis is complete, and if the patient survives the first four to six weeks, late effects of the disease need not be anticipated.

Myocardial damage rarely follows cases of scarlet fever. There is some evidence that this condition may be simply reactivation of quiescent rheumatic fever in a patient with the "rheumatic state".

4. *Less common infections.* Tuberculosis occasionally involves the heart, usually as a pericarditis originating by direct extension from caseous mediastinal nodes. The typical patient is a colored male, aged 40. The disease frequently is fatal, although recovery may occur, with adhesion or constriction of the pericardium. Tuberculosis and sarcoid

may very rarely cause a miliary myocarditis, with failure due to replacement of myocardial fibers by the infective granuloma. Occasionally, in typhoid fever, Zenker's degeneration of the myocardium occurs, although degeneration of the voluntary muscle of the abdominal wall is more frequent. Typhus fever, which is manifested chiefly as an arteriolitis with thrombosis and hemorrhage, may involve the myocardium.

5. *Rare diseases.* There is a group of rare diseases of unknown etiology which involve the heart. Among these is Libman-Sachs disease, which affects the endocardium with production of pink verrucous vegetations. This also affects the arterioles. Periarteritis nodosa and disseminated lupus erythematosus are other examples of primary arterial diseases which may involve the heart and which are probably infectious in origin, although this has not been proven.

6. *Tropical diseases.* Tropical parasitic diseases, particularly yellow fever and African trypanosomiasis, are said to involve the heart frequently. These will probably be seen more frequently after the present war when the soldiers who have been exposed to these diseases return.

7. *Secondary infections.* There is a large group of infections which are essentially septicemias, in which bacteria are discharged into the blood stream from a focus which has become secondarily engrafted on a previously damaged endocardium. The endocardium may have been damaged by congenital developmental abnormality, more commonly by a previous attack of rheumatic fever, and occasionally by the scarring of syphilis. The valves usually affected are, in this order, mitral, aortic and then those of the right side. Nearly every organism which causes disease in the human being has at some time or other been recovered from a patient with bacterial endocarditis. In one large series the alpha or green hemolytic streptococcus was recovered in slightly more than half the cases; the pneumococcus, staphylococcus and gonococcus each occurred in 10-15 per cent of the cases; and the other organisms were present in very small percentages. If sufficient care is taken with the bacteriologic studies, infections by two or more organisms can be found with surprising frequency. In the past this disease has proven almost universally fatal. The development of the sulfonamides, which tend to delay multiplication of the bacteria, offers our first hope of intelligently attacking the problem. Treatment will depend upon the laboratory findings. The organisms should be tested *in vitro* to determine which of the drugs will be most effective and what concentration must be maintained to prevent growth. The use of bacterial antiserum will depend upon the level of antibodies in the patient's blood serum. The use of neoarsphenamine, alone or in combination with the sulfonamides, and the use of anticoagulants are still experimental. One type of the disease may be attacked surgically, if the infection is implanted on a patent ductus arteriosus.

8. *Intercurrent infections.* Infections in various places throughout the body rarely cause serious damage in an otherwise normal individual. If the heart has been previously damaged from any cause, whether by circulatory abnormality or previous infection, even a relatively minor upper respiratory infection may precipitate serious cardiac complications. Abnormalities of rhythm, particularly auricular fibrillation, or myocardial failure may occur. It is common for any intercurrent infection to reactivate quiescent rheumatic fever. If there is underlying disease of the coronary artery with an arteriosclerotic plaque causing a break in the intima, the stage is set for the development of a thrombus as the result of increased fibrinogen and other changes in the blood caused by the infection. Most people who die during the course of an infection—as, for example, pneumonia—die of peripheral circulatory collapse. This is not truly a disease of the heart itself, but is failure of the heart resulting from the disturbance in the systemic circuit. In such cases cardiac stimulants and digitalis will be of no avail.

Summary

The heart may be involved during the course of infectious diseases as the result of primary infection of the myocardium, endocardium or pericardium. There may be direct invasion of the heart by the infecting organism, or the effects may be due to a circulating toxin. The heart may be secondarily infected or may fail as the result of changes in the systemic circulation occurring during intercurrent infection.

CHALYBEATE SPRINGS MINERAL WATER

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The name chalybeate was derived from an ancient people, the Chalybes, of Pontus in Asia Minor, who were iron and steel workers. They often developed bluish discoloration of the skin from the handling of iron. Chalybeate waters contain approximately .9 grain of iron carbonate to every sixteen ounces of mineral, or 0.01 to 0.12 grain of iron oxide per liter of water. These springs contain moderate amounts of Epsom and Glauber's salts, common salt, sulfate of lime, and a large quantity of carbonic acid gas. Among the most famous chalybeate springs are those in Cornica, Taubridge, and Brighton in England; St. Moritz, Pyrmont, Wiesbaden, and Spa on the Continent; Saratoga, New York; Bedford, Pittsburg, and Brandywine, Pennsylvania. There are also several in the mountains of Virginia, and one in Harnett County, North Carolina.

The peculiar color of the mineral responsible for the iron content of these waters is due to an oxide of iron, the intensity of color depending upon the degree of oxidation that has taken place. The color may vary from white to brown, and the mineral is often found as a precipitate at the bottom of the container. A very dark color is due to a large quantity of limonite, which is easily transformed into iron carbonate by oxidation. Crystals of iron carbonate are usually found as granular masses.

The use of iron as a hematinic in patients with chronic bleeding, chlorosis, or other secondary anemias is well known. The ingestion of excess amounts tends to irritate the bowels and produce constipation.

Electricity that has been "freed from the bondage of wire transmission" is being used by General Electric engineers to study minute specimen invisible under the ordinary light microscope. This electricity, in the form of electrons, is shot from a small electron gun at a fluorescent screen 11 inches away, and similar to that used in a television set. The specimen is inserted between gun and screen and as the electrons pass through or around it, and are magnified, they form an image of the specimen on the screen.

This action takes place in a simplified electron microscope described by Dr. C. H. Bachman in a talk January 23 at Columbia University (New York) before a joint meeting of the American Physical Society and the American Society for X-Ray and Electron Diffraction.

The instrument, which can be plugged into the regular 110-volt a-c house circuit, is capable of producing images 10,000 times the size of the subject. Further enlargement of the picture can be made photographically up to 100,000 times the size of the original specimen, or better, if desired.

If a hair 1/100 of an inch across, were split lengthwise into 100 slivers, and 99 of these pieces were thrown away and the one remaining piece was split again into 100 similar pieces, each of these filaments, only 1/1,000,000 of an inch across, would stand out clearly in the G-E instrument.

"The magnifying power of the electron microscope was not selected to attempt an approach to the ultimate, but rather to provide an instrument useful to the solution of immediate war and post-war problems confronting the great majority of workers in this field. It is believed that to these workers, the relative simplicity and ease of operation of the instrument will appeal," Dr. Bachman explained.

The machine is expected to expand the use of electron microscopy in laboratories now engaged in war work and medical research—and eventually to find wide usage in high schools and colleges. Due to present priority requirements, the device will be available for use only in essential laboratories and war plants.

The device uses the relatively small electron waves instead of light waves because their shorter length makes it possible to study much smaller objects than could be achieved with visible light waves. Light travels in waves of about 1/42,000 of an inch in length, and objects must be at least half that long before they can be seen under the ordinary optical microscope. Prior to the electron microscope, when objects to be viewed were smaller than this, it was impossible to obtain sharp images, so that further useful magnification at that wave length became impractical.

The new microscope has an over-all height of 52 inches, and requires floor space of about two by three feet. The cabinet includes simple power supply, the mechanical vacuum pump, and an air-cooled, oil-diffusion high vacuum pump. A camera is provided for mounting on the front of the instrument for photographing reproduction when this feature is desired. The cabinet is mounted on castors for mobility, and weighs 600 pounds. No special facilities for operating the instrument are needed, and the unit includes the microscope proper and all auxiliaries.

Physically, the microscope has been designed for the convenience of the operator. The electron chamber is mounted horizontally, the eye piece at one end being at eye level for an operator seated before the instrument. The electron chamber is supplied with voltage and is evacuated from the end which extends into the cabinet. All controls are at the operator's fingertips. These include accelerating voltage, image intensity, the main vacuum valve, focus control, and the movement of the specimen. In effect, the operator is seated at a desk with a drawer beneath so that materials and notebooks are conveniently at hand.

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QUID PRO QUO?

To the medical student and the prospective medical student, the proposed plan of the government to give a complete medical education, with all expenses and a handsome bonus of fifty dollars a month for spending money paid from the apparently inexhaustible unbalanced budget of Uncle Sam, must sound like a fairy tale too good to be true. To the parents of would-be doctors, harassed by mounting expenses and the growing burden of taxes, the plan is suggestive of the generosity of a super Uncle Bim Gump.

It is only natural and right to consider, however, just what is expected in return for this free education, and to wonder if it is best for the student himself, for his future patients, for the cause of medical education, and for the country.

Under its present system, American medical education is unquestionably the best in the world. The long preliminary college training required by all medical schools provides a certain cultural background that a doctor needs. The struggle to get an education, though often requiring sacrifice on the part of the boy or his parents, means that that education will be appreciated. To curtail the preliminary training to fifteen months—in some cases even omitting the last year of high school—cheats the youngster out of an important part of the groundwork for his medical education. He is doubly cheated because he will have no opportunity to know what he has missed, and little incentive in the future to repair the loss. Some vague talk of making up for the defective preliminary training by future postgraduate work is as empty as a promise made during courtship to reform after marriage.

The young doctor will find the awakening that he must face in the aftermath of the war all the ruder by contrast with the financial security afforded during his school days. It does not take an economist or a prophet to foretell that either inflation or repudiation of our national debt must come when the war is over; and either may be followed by a depression that will make the last one a rosy dream. Sooner or later the young man must be faced by the choice of entering private practice "on his own", or of continuing to be cared for from the public treasury. If the former course is chosen—or allowed under postwar conditions—the going will be rougher by contrast with the sheltered life he led as a Government ward. If he takes the latter alternative—supposing there are enough taxpayers left to support all Government employees—there will be lacking the incentive to cultivate his medical talents to the utmost.

His future patients must pay the price—unless he is unusually ambitious—of a medical education curtailed at each end and designed primarily to prepare him for military service, in which women, children, and the old are of secondary or even tertiary importance. These patients may also miss the privilege of having a family doctor, interested in them as individuals rather than as impersonal problems.

Medical education in Germany has been set back fifty years since it has been controlled by the Nazi military machine. Do we have to follow Germany's example in order to win the war? It is inevitable that the telescoping of our medical courses, and the very obvious subordination of medical education to the strictly utilitarian program of providing the army and navy with doctors just as these forces are provided with tanks, planes and submarines, will lower medical

standards. It must be remembered that these standards can be lowered much more easily and quickly than they can be raised again.

The country itself must suffer in various ways. One of the least, but still to be considered, is the extra tax burden entailed. Government expenditures have assumed such astronomical figures that a few hundred millions more or less may seem negligible; but the ides of this March have reminded millions of taxpayers that something more than token payments are now being required of our citizens. For years there have been far more applicants than our medical schools could accommodate, ready and anxious to pay their way. This year, with the largest income the country has ever had, would certainly see more than enough good material to fill all our schools. All that is necessary is for these men to be deferred from the selective service draft until they have finished their medical training. The argument that many would use this as a means of escaping the draft is pure buncombe. To think that any young man in his right mind would undertake the long, hard medical course just in order to postpone military service is laughable.

The plan savors strongly of totalitarianism. It is a long step toward federal control of education. With eighty per cent of the medical graduates—all but the women and the physically unfit—in the employ of the Government after graduation, for an indefinite period, politically controlled medicine will be upon us, whether we like it or not.

In our fight for freedom, let us not forget the freedom of American medicine to maintain its high standards, which have made it the best in the world. The young man of America certainly should not be required to sell his educational birthright for a sorry mess of socialistic pottage. Let us hope that we will not have to witness the betrayal of our youth.

* * * *

HOSPITAL VISITORS

An editorial in the January issue of the *Rocky Mountain Medical Journal*[1] suggests that "one war measure which could well become universal, and which could be well left in its war-time status afterwards" is limitation of the number of visitors a hospital patient may have. Certainly all hospital personnel and most physicians will breathe a fervent "Amen" to the sentiments expressed in this editorial, which reads, in part, as follows:

"Except for the patient who is dangerously ill, or moribund, in which case the doctor has a 'No Visitors' sign on the door, it is usually the patient who asks the doctor if there isn't something he can do to keep out the constant stream of visitors.

"Mrs. Jones has had a baby or an operation. Mrs. Smith, who hasn't seen Mrs. Jones for two years, and who under ordinary circumstances wouldn't see her for two more years, is imbued, immediately upon hearing the news, with an uncontrollable impulse to 'visit' her. And Henry Brown, who has not been to Lodge for five years, is awakened from the first sleep he has had in several days by a visitation of the 'Sick Committee,' none of whom he knows personally, nor they him. The corridor side of the glass partition of the hospital nursery, in the evenings and on Sunday afternoons, is crowded four and five deep with people 'looking at the babies' and most or all of the nursery staff, instead of taking care of the babies, are occupied with getting them from their bassinets and exhibiting them.

"The unlimited admission of visitors to hospital patients is a pernicious thing even in normal times. They consume the time of nurses and other attendants which had better be given to patients. They add to the clatter and noise of institutions which, outside of certain types of industrial establishments, are already the noisiest places there are, when they should be the most quiet.

"Any one who is sick enough to be in a hospital, even in the late convalescent state, should be permitted to make the most of an opportunity to secure all the relaxation and rest he or she can get, and not be forced to act as host or hostess for a ten-day or two-week open house.

"The responsibility for the limitation of visitors should not be placed upon the patient, for obvious reasons. It should be assumed by the doctors, or better by the hospitals themselves, which would limit visitors to patients to the immediate members of the family. Except for an occasional case, patients would probably be very grateful."

1. Editorial, Rocky Mountain M. J. 40:16 (January) 1943.

THE DIAPHRAGMATIC FLEXURE

A recent article by John L. Kantor[1] discusses a condition which most clinicians must have observed in a number of patients, but which for the first time he describes as a clinical entity. In his article he applies the term "diaphragmatic flexure" to "an anatomical condition in which the splenic flexure is located directly under the left diaphragm." The x-ray criteria of this condition "were established arbitrarily as follows: The tip of the splenic flexure must lie one-half inch (1.25 cm.) or less from the diaphragm when measured vertically on any film taken in the prone posture following either a barium meal or an opaque enema."

Kantor has found this anomaly in 157 of 996 patients—an incidence of slightly more than 15 per cent. He has found that the frequency of occurrence is approximately the same in both sexes, but that the condition is more often found in the stocky type of individual than in the slender and that it is often associated with the redundant colon.

Clinically, Kantor has found that this anomaly does not always produce symptoms, nor are its manifestations constant in the same individual. In order for it to give rise to discomfort, it is necessary for the flexure to be distended by gas, and for the stomach or heart —or both—to be impinged upon by the distended flexure. It requires little imagination, however, to understand how easily either of these organs might be pressed upon by a distended high splenic flexure and how a spastic distal colon, constipation, a redundant colon, and rectal fissure or hemorrhoids might bring about this distention.

The principal symptom of the diaphragmatic flexure is heart burn, which occurred in 46 per cent of the patients in Kantor's series, as against only 19 per cent of those in a control group. He explains this symptom as being due to the pressure of the distended flexure on the stomach, which forces part of its contents into the esophagus.

Another symptom is precordial pressure or pain, often radiating down the arm in anginal fashion. Other cardiac symptoms are palpitation, extrasystoles, and dyspnea, especially after eating and on exertion.

In addition to these symptoms, the pressure on the diaphragm may cause a feeling of fulness or bloating after meals, with repeated belching. This adds to the distress by the air swallowing induced. The intestinal gas content is increased, with further pocketing under the diaphragm.

The treatment of this condition may well be anticipated by an understanding of its mechanism. According to Kantor, it may be placed under the heading of the three R's: Reassurance, Relaxation, and Re-education.

By way of reassurance, the patient's condition is explained to him and he is made to understand that his symptoms, while annoying, do not mean serious heart disease, cancer, or ulcer, and that no operative procedure is necessary.

He is told to cultivate, so far as possible, that equanimity which is so desirable for every one; to secure adequate rest and sleep, with restful week-ends and frequent brief vacations; and to avoid coarse, irritating, or gas-forming foods. Anti-spasmodics, such as atropine or belladonna, and hypnotics if necessary are often helpful.

The patient should be re-educated in the proper care of the colon. He should be taught to avoid drastic cathartics and irritating enemas and to substitute bulk-producing but smooth substances, with an abundance of water, especially before breakfast. Lying on the left side helps to prevent the regurgitation of irritating material into the esophagus. Activities involving body-bending after meals, and the wearing of tight belts or corsets should be avoided.

1. Kantor, John L.: The Diaphragmatic Flexure, Am. J. Roentgenol. 47:417-426 (March) 1942.

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THE NORTH CAROLINA SCHOOL OF PUBLIC HEALTH

Announcement has recently been made of a fellowship, made available by the W. K. Kellogg Foundation, through the United States Public Health Service, for training personnel in health education. The fact that the North Carolina School of Public Health has been chosen to provide this training is a recognition of the achievements of this school and a tribute to the remarkable strides it has made under the leadership of Dr. Milton J. Rosenau, Director, and Dr. Harold W. Brown, Dean. The school has already rendered a great service to the state and to the nation in time of peace, and its contribution to the expanded war-time program of preventive medicine will be invaluable.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

Charlotte Memorial Hospital

NOVEMBER 23, 1942

C. S. J. was admitted to the Morris Field hospital on September 18, 1942, with a complaint of discharge from the penis of one week's duration. The family history was non-contributory. The patient had had typhoid fever at the age of 10. He contracted gonorrhea in 1926 and again in 1941. Since 1941 he had had slight morning drip but apparently no other complications.

The patient was exposed on September 7, 1942, and on September 11 he first noticed a urethral discharge. Physical examination on admission showed no abnormalities except a profuse urethral discharge. The diagnosis was "Gonorrhea, acute." So far as was known, the patient had taken no sulfonamide prior to admission. He was given 5 Gm. of sulfathiazole by mouth on September 18. Three days later, on September 21, a smear for gonococci was positive and sulfathiazole, 1 Gm. four times daily, was started. After another three days, on September 24, the patient developed high fever and an elevated rash of the face and neck, accompanied by marked prostration, nausea, vomiting and pain with constriction in the chest. The leukocyte count was 26,650, with 98 per cent polymorphonuclears. At this time the patient had received 18 Gm. of sulfathiazole within seven days. Sulfathiazole was discontinued and fluids were forced by mouth. The rash gradually improved and the temperature fell gradually from 105 F. on September 24 to normal on September 27. On September 25, however, considerable swelling of the face and eyelids developed, and the patient had difficulty in breathing. On September 27 almost complete anuria developed. During the next thirty-six hours he passed only three ounces of concentrated urine. On September 29 the nonprotein nitrogen was 30 mg. per 100 cc. of blood; creatinine 1.5 mg. per 100 cc.; plasma protein 5.2 Gm. per 100 cc. (albumin 3.2 Gm., globulin 2.0 Gm.). The patient could not be catheterized because of multiple urethral strictures. He gradually became semi-comatose and developed moderate abdominal distention. A urologist was called in consultation. With great difficulty a no. 4 rubber catheter was placed in the bladder and left in place. On this date, September 29, the blood pressure was 140 systolic, 90 diastolic. The urine gave a 2 plus reaction for albumin, and contained sulfathiazole crystals and occasional red blood cells. Sulfathiazole crystals had been detected in the urine as early as September 25. The white blood cell count dropped steadily until September 26, when it was 18,500. On September 29 only one ounce of urine was obtained by catheter. On this date a pericardial friction rub was heard over the entire precordium. The patient became comatose on September 30 and died at 7:20 p.m. with a temperature of 100.4 F. His nonprotein nitrogen on the day of death was 35 mg. per 100 cc. of blood.

Discussion

DR. W. B. MAYER: From the evidence presented, it is safe to say that the patient had a gonococcal urethritis and urethral stricture. There is nothing in the record on which to base a diagnosis of gonococcal septicemia or endocarditis. The fever, rash, and leukocytosis which the patient developed on the sixth hospital day are typical of a drug reaction of the acquired sensitivity type.

It is very unlikely that the massive dose (5 Gm.) of sulfathiazole was responsible for this reaction, since it is used routinely in military hospitals without known untoward results. Reactions of this type only follow repeated doses or prolonged treatment. The earliest time of their occurrence is said to be between eight and ten days after the initial dose; however, there may be exceptions, and serious reactions have been described four or five days after the beginning of treatment, or even earlier if the patient has previously had the same drug. Since our patient had had an acute attack of gonorrhea in 1941, it is likely that he had received sulfonamide treatment at that time. Acquired hypersensitivity to sulfathiazole is estimated to occur in from 10 to 30 per cent of all patients treated.

Subsequent to this acute febrile reaction, the patient developed complications which in three or four days led to death. The most serious complication of sulfonamide therapy, anuria, which developed in our patient, is frequently related to gross mechanical blockage of the urinary tract by concretions of

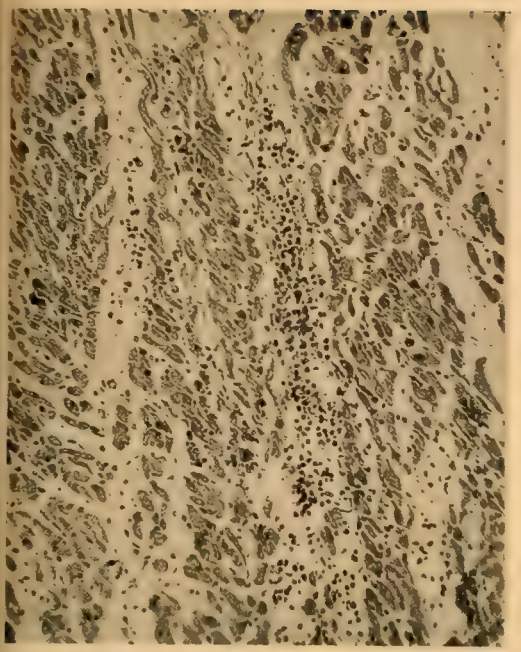


Fig. 1. Interstitial myocarditis, low power field, showing inflammatory infiltration in the interstices of myocardium.

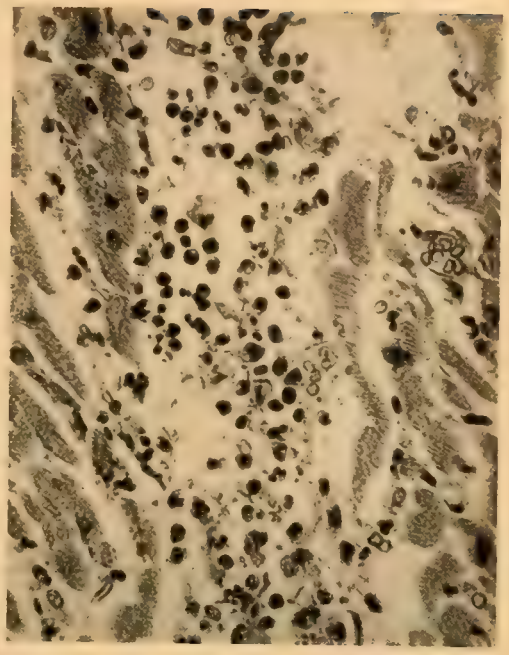


Fig. 2. High power magnification of figure 1 demonstrating the type of infiltrating cells, their pleomorphism, and the presence of polymorphonuclear leukocytes, many of which are eosinophilic in character.

the drug. In this case, however, there was no gross hematuria or loin pain, nor did the patient develop true uremia.

Rather, it appears that the patient's condition fits in with those cases reported from Brooklyn and Baltimore, in which there was generalized tissue reaction with a tubular nephrosis and multiple miliary necrotic foci in many of the organs. This reaction may be primarily toxic, but is more probably based upon an acquired tissue sensitivity. Many of these cases showed effusion into the body cavities. The low plasma protein in this case is difficult to explain. The record does not contain enough data to indicate whether it is connected with a nephrotic syndrome or due to liver damage.

Pathological Discussion

DR. P. KIMMELSTIEL: The pertinent findings at autopsy were marked generalized anasarca, particularly of the face and eyelids. There was also ascites (approximately one liter of fluid) and hydrothorax. The *heart* showed several spotted areas of fibrinous pericarditis and the mottled appearance of a flabby myocardium. Histologically, there was diffuse and severe interstitial myocarditis, chiefly characterized by eosinophils, lymphocytes, plasma cells and a variety of histiocytes. The *lungs* grossly were rather edematous. Microscopically they showed moderately marked interstitial pneumonia; the cells infiltrating the interlobular and interalveolar septa were of the same type as those found in the myocardium. The *kidneys* weighed more than 400 Gm. each. They were swollen and extremely moist. Histologic sections showed extreme interstitial nephritis, with cells of the same type as those found in the heart and lungs densely infiltrating the interstices of the cortex and the corticomedullary junction. The glomerular and vascular apparatus was intact. The tubules, particularly the first convoluted tubules, showed some degenerative changes, including vacuolization, partial disintegration, and occasional necroses; but on the whole the regressive changes were comparatively mild. Most of the nuclei were well preserved. Frozen sections were not made prior to fixation. Therefore, no statement can be made in regard to the presence or absence of sulfonamide crystals. Acute tubular dilatation

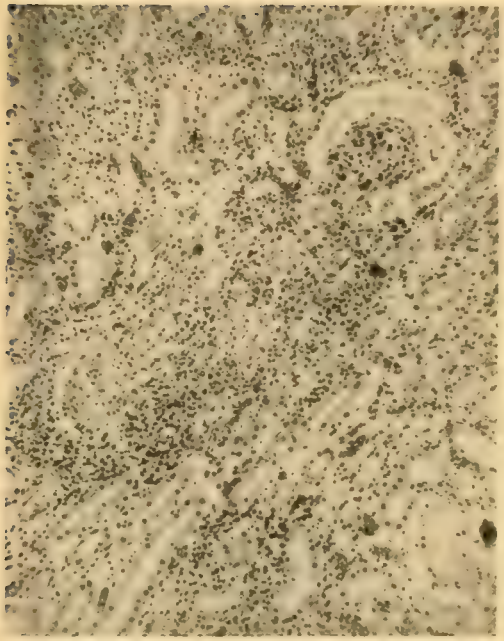


Fig. 3. Interstitial nephritis, low power field, showing very slight tubular dilatation and severe inflammatory infiltration.

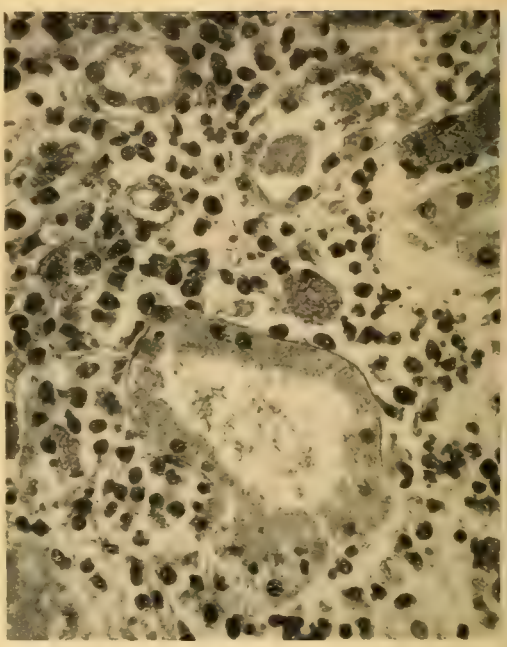


Fig. 4. High power magnification of figure 3.

was negligible; glomerular spaces were occasionally dilated. The *liver* was greatly enlarged, weighing 3300 Gm., and had rounded margins. The outstanding histologic features were severe and extensive dissociation of liver cell cords and fine basophilic granulation of liver cells. No interstitial hepatitis of serous or cellular type was demonstrable.

Interstitial inflammatory infiltration of the type seen in the heart, lungs and kidneys was also found in the pancreas, periadrenal fat tissue, and testes. Several small mucosal ulcers were also noted in the cecum. Grossly and histologically they were nonspecific in appearance.

In *summary*, therefore, it can be stated that the outstanding changes were those of a severe diffuse interstitial inflammatory infiltration of many parenchymatous organs, most prominent in the heart and kidneys, and associated with diffuse degenerative changes in liver parenchyma.

The most outstanding clinical sign, the urinary suppression, is frequently observed in cases of acute hematogenous interstitial nephritis[1]. As a rule the nonprotein nitrogen in such cases jumps rather rapidly to high values and the patient dies in uremia. There is no explanation as to why this sequence of events did not take place in the case under discussion. Furthermore, though moderate albuminuria is often found in cases of interstitial nephritis, it is usually not associated with generalized edema and lowered plasma protein as was the case in this patient. These findings may be explained on the basis of advanced degenerative liver changes. The absence of elevation of blood pressure is rather characteristic of interstitial nephritis which does not involve the glomerular and vascular systems of the kidney. The pericarditis, in our case, was not uremic in nature, but apparently merely an extension of the diffuse interstitial myocarditis.

From the evidence presented, it is safe to conclude that the interstitial inflammation of various parenchymatous organs and the degenerative liver changes were related to the administration of a sulfonamide. There is no reason to assume that the local acute gonorrhea had resulted in systemic involvement of all organs. On the one hand, gonorrheal septicemia could be excluded; on the other hand, the changes described are known

1. Kimmelstiel, Paul: Acute Hematogenous Interstitial Nephritis, Am. J. Path. 14:737-761 (Nov.) 1938.

to occur as a result of sulfonamide administration, even in cases without demonstrable acute infections. Two theories have been advanced as to the cause of urinary suppression: (1) Actual blockage of pelves and ureters by sulfonamide crystals (intrarenal accumulation of sulfonamide crystals is also theoretically assumed to result in obstruction of urinary outflow); (2) so-called "toxic" tubular changes in the kidney. In my opinion, such renal damage can readily be explained on the basis of hyperergic reaction to the drug. Interstitial nephritis with urinary suppression has repeatedly been accurately described in the literature. It has not, however, been specifically termed "interstitial nephritis", but rather has been vaguely referred to as toxic damage resulting from a drug.

In our case, the interstitial nephritis was associated with inflammation of other organs, particularly the heart. Interstitial myocarditis has recently been described as a rather frequent complication of sulfonamide administration[2], and because of its eosinophilic nature, has been ascribed to allergy.

I believe that our case bears the characteristics of allergic reaction to a sulfonamide drug: fever, rash, prostration, leukocytosis, interstitial nephritis, and myocarditis. The unusual features are: (1) severe liver damage with a fall in plasma protein and resultant generalized edema, and (2) the absence of an elevated nonprotein nitrogen and creatinine in the blood, in spite of anuria.

General Discussion

DR. W. E. DANIEL: There are three complications of sulfonamide therapy which involve the urinary tract.

First: The obstruction of the renal tubules by the products of hemolysis in cases of acute hemolytic anemia. This complication may follow acute hemolytic anemia from any other cause, and fortunately is very rare.

Second: Diffuse parenchymatous changes in the kidneys with degenerative tubular damage, which Dr. Kimmelstiel has properly classified as an acute interstitial nephritis. There may also be submucosal hemorrhages along the course of the urinary tract accompanying this condition. I have seen one such case in which one ureter was completely blocked by a large submucosal hemorrhage. The development of acute interstitial nephritis during sulfonamide therapy presupposes a sensitivity to the particular drug employed and is preceded by the appearance of fever and a drug rash.

Third: Blockage of renal tubules, pelves and ureters by crystals of the drug. This condition does not presuppose a sensitivity to the drug but is due either to large dosage or to limited fluids, or to a combination of the two. It may occur during sulfathiazole, sulfapyridine, and sulfadiazine administration, but has not occurred following sulfanilamide therapy, probably because sulfanilamide is much more soluble than the other three drugs. This complication can be avoided by maintaining an adequate fluid intake and by using smaller doses of the drug. It is unfortunate that the first advocates of sulfonamide therapy thought that high concentrations of the drug in the blood and urine were necessary. They even went so far as to limit the fluid intake in order to assure a higher concentration in the urine. Fortunately this was in the early days, and the drug used was sulfanilamide, which is comparatively soluble and is not likely to crystallize. If fluids are reduced during the administration of sulfathiazole, sulfapyridine, or sulfadiazine, trouble is invited. In urological practice, we never use more than 2 Gm. daily and have found this dosage just as effective as the larger doses used formerly.

In closing, I would like to put in another plea for adequate fluid intake and smaller dosage. These drugs are capable of performing miracles, but are also loaded with dangers for the careless user.

DR. M. T. GILMOUR: It is becoming increasingly clear that renal complications constitute one of the most important dangers in the use of the sulfonamide drugs. The mechanisms by which oliguria and anuria occur have already been enumerated by Dr. Daniel.

It seems to me that this case is of unusual interest in this connection and that Dr. Kimmelstiel's observations regarding it are of fundamental importance. Although the lesions pointed out by Dr. Kimmelstiel have been described by others, nowhere in the literature do I find that they have been recognized as constituting an acute interstitial nephritis. Their proper classification as such may serve as the key to the solution of this entire problem.

2. French, A. J. and Weller, C. V.: Interstitial Myocarditis Following Clinical and Experimental Use of Sulfonamide Drugs, Am. J. Path. 18:109-121 (Jan.) 1942.

In this connection we are led directly to the subject of sensitivity to the sulfonamide drugs. Experimental evidence shows that animals may be sensitized to certain azoprotein linkages of these drugs but not to the pure drug itself. Clinical experiments reported by one group of workers indicate that about one-third of the patients receiving a sulfonamide drug may be expected to develop some type of sensitivity to it. It has been shown that this may develop within nine days or even less, and that in some cases at least, it may last as long as two years. Some authors have reported test cases in which sensitivity to the drug has developed and in which a recurrence of fever and at times of rash and of generalized symptoms suggesting grippe occur each time the drug is again administered. In these cases, the size of the dose does not seem to be important; amounts as little as 1/10 Gm. often have the same effect as larger doses. Anuria has been reported from a total dose as small as 12 Gm., and death from as little as 17 Gm. The sensitivity does not seem to be entirely specific for each particular drug. At times a patient sensitive to one of the sulfonamides may be able to take another without difficulty, but in such cases a special caution must be exercised.

The implications of these facts are of great importance. In giving the drug, we must exercise the same care and judgment as are required in the administration of serum. Before prescribing any of these drugs we must always consider three possibilities: There is the unpredictable chance that an idiosyncrasy or hypersensitivity to the drug may exist and may result in a severe hemolytic anemia within twenty-four hours. Then there is also the possibility that the patient, through previous use of the drug, may have acquired a sensitivity to it. As yet it is not possible to detect these patients, as it is to detect patients who are sensitive to serum, and this danger is thus particularly difficult to avoid. And finally, there is the possibility that the patient, by his use of the drug, may become sensitized so that in the future its use in a more serious illness may be dangerous.

It thus becomes necessary to determine, if possible, in every instance whether the condition from which the patient is suffering is sufficiently serious and sufficiently likely to be benefited by the drug to warrant the risks involved in its use. The indiscriminate use of these valuable but potentially dangerous drugs for upper respiratory infections and other minor conditions, in which they are probably useless anyway, cannot be too strongly condemned, particularly when the drug is given at home without close clinical or laboratory observation.

During the administration of the drug in the hospital, diligent care must be exerted to detect at the earliest possible moment any toxic effect that may arise. Hospital routine should include the keeping of a simple, standardized fluid balance sheet on each patient receiving a sulfonamide drug. This should be started automatically without the necessity of a special order. In addition to the frequent examinations of the urine and blood which are required, it is important to observe the skin and eyes closely each day to note the earliest appearance of any rash or of anything suggesting a conjunctivitis. Obviously, any pain in the loins or back must be carefully evaluated. The patient must also be protected against harm which might come from the occasional mental disturbances which occur. The appearance of fever or of chills and fever in a patient taking one of the sulfonamide drugs must always suggest the possibility of drug fever. Similarly, continuation of fever which cannot be explained on any clinical basis must also suggest this possibility. If drug fever is suspected the drug must be immediately discontinued. This decision is often a difficult one to make.

Patients who have received any one of the sulfonamides should be informed of that fact before they leave the hospital so that they may be able to give a correct answer to inquiries on this score in the future. The diagnosis sheet or the chart of each of these patients should likewise state that a sulfonamide drug has been administered, and if any evidence of toxicity or sensitivity was observed, this should be especially noted. These facts should be conspicuously placed and not buried on the order sheets or in the progress or nursing notes.

Finally, let me emphasize once more that these drugs are not an unmixed blessing. As valuable as they are, they may also be dangerous, and their action is not as yet entirely understood. Our enthusiasm for the sulfonamides must be mixed with a healthy leaven of caution and respect so that we may use

them with discretion and good judgment and not simply as a cloak for ignorance or helplessness in the face of a difficult situation.

CLINICO-PATHOLOGICAL CONFERENCE

Duke Hospital

J. LAMAR CALLAWAY, M. D.
and
DOUGLAS SPRUNT, M. D.

DR. CALLAWAY: This patient was a 36 year old colored woman who was admitted complaining of right upper quadrant pain and abdominal distention of ten days' duration.

The *family* and *marital* histories were noncontributory.

The *past history* showed that the patient had always been obese but otherwise had been in good health. She had had intermittent frontal headaches for the past several years, and because of this she was fitted with glasses six months ago. About one year ago she had some dependent ankle edema. Ten weeks prior to admission the patient consulted her physician because of weakness, and at that time was found to have a positive Wassermann reaction; treatment was begun with weekly intravenous injections of neoarsphenamine. During the past year she had drunk up to one quart of gin per day and smoked about twenty cigarettes daily.

Her *present illness* began ten days ago, after her seventh intravenous injection of neoarsphenamine, when she began to have right upper quadrant pain with abdominal distention. There was associated nausea and vomiting, but the vomitus contained only the food previously eaten and at no time showed any blood or coffee-ground material. She felt feverish and broke out with a generalized eruption involving the extremities and trunk. She noted that her urine was becoming darker and that her stools were becoming lighter in color, and about a week before admission her eyes became quite yellow. There had also been some moderate diarrhea, consisting of three to four watery stools each day.

On *admission* the patient had a temperature of 39.5 C., pulse 120, respirations 20, blood pressure 150 systolic, 100 diastolic. She was an obese, perspiring, pleasant 36 year old Negro woman lying flat in bed, restless, and complaining of being hungry. The skin was warm and moist but there was no significant eruption at the time. Her sclerae were icteric. The pupils were round, regular and equal, and reacted to light and on accommodation. The fundi were normal. The teeth were dirty. The tongue was coated and red. The chest was symmetrical; the percussion note was somewhat dulled throughout but the breath sounds were normal. The heart was enlarged to the left; the rate was 120, the rhythm was regular, and there were no murmurs. The abdomen was very obese and there was marked tenderness in the right upper quadrant. The liver was enlarged 6 cm. below the right costal margin and was very tender. No free fluid could be demonstrated in the abdomen. The neurological examination was negative.

Accessory clinical findings revealed a hemoglobin of 87 per cent, 4,420,000 red blood cells, a color index of 1.08, a hematocrit of 40.5 volumes per cent, and a mean corpuscular volume of 91 cubic micra. The white blood cell count was 7,250, with a differential showing 72 per cent polymorphonuclear segmented forms, 9 per cent stabs, 5 per cent juveniles, 2 per cent large lymphocytes, 8 per cent small lymphocytes, and 6 per cent monocytes. The Wassermann, Kahn, and Kline reactions were strongly positive. Blood chemistry studies showed a nonprotein nitrogen of 32 mg. per 100 cc., with a direct van den Bergh revealing a bilirubin of 7.4 mg. per 100 cc. The total serum proteins were 5.5 Gm. per cent, with an albumin-globulin ratio of 0.9. The bromsulfalein test showed 40 per cent retention. The blood sugar was 133 mg. per 100 cc. A galactose tolerance test disclosed 7.4 Gm. of galactose excreted. A flat plate of the abdomen was negative except for the fact that the liver was considerably enlarged. Serum phosphorus was 4.1 mg. per 100 cc., with the phosphatase showing 16.4 Bodansky units. The urine showed a specific gravity which varied between 1.010 and 1.022. The sugar and albumin tests were negative.

Course in Hospital: The patient was placed on a high carbohydrate, low fat diet supplemented by thiamin chloride, nicotinic acid and cevitamic acid. She was given intravenously 750 cc. of 10 per cent dextrose daily. Her condition grew progressively worse. She continued to complain of right

upper quadrant pain and became more jaundiced. The temperature, which on admission had been normal, rose to 39.3 C. on the sixth day, and she expired after being delirious, restless, and noisy for the previous twenty-four hours. The serum bilirubin two days prior to death was 23.2 mg. per 100 cc.

Discussion

The differential diagnosis in this patient is interesting in that there are at least eight fairly good possibilities to be considered, as follows:

1. Acute cholecystitis with or without cholelithiasis
2. Catarrhal jaundice
3. Alcoholic cirrhosis
4. Acute syphilitic hepatitis
5. Late gummatous hepatitis
6. Jarisch-Herxheimer reaction
7. Malignancy
8. Arsenical hepatitis

Acute cholecystitis at first glance seems to be substantiated by the right upper quadrant pain and tenderness at the time of examination. The direct van den Bergh of 7.4 mg. per 100 cc. also is confirmatory. The pain, however, did not radiate and was not the type of colicky pain usually associated with cholecystitis. A simple catarrhal jaundice which had appeared incidental to syphilis and to antisyphilitic treatment is a good possibility, and is frequently seen in patients undergoing antisyphilitic therapy. Patients with catarrhal jaundice, however, are not as a rule as ill as this patient was and tend to recover in a short time.

The history of the ingestion of large quantities of alcohol suggests the possibility of alcoholic cirrhosis, and, although the onset was very rapid and there was considerable pain, this possibility has to be borne in mind. Acute syphilitic hepatitis must be considered, but there is no indication that she had an early syphilitic infection. Therefore, I do not think it likely that this represents parenchymatous involvement by the Spirochaeta pallida. Gummatous syphilitic hepatitis is a rather rare disease and seems a remote possibility.

The onset of her present illness after the seventh intravenous injection of neoarsphenamine tends to rule out the Jarisch-Herxheimer reaction, although this edematous reaction following antisyphilitic therapy must be considered. As a rule, the Jarisch-Herxheimer reaction follows the first or second treatment. Malignancy in or around the common duct might produce signs and symptoms not unlike those presented by the patient.

Arsenical hepatitis seems to me to be the most probable etiologic factor since, in addition to right upper quadrant pain, enlarged liver, and jaundice with the associated clinical findings, she also developed a cutaneous eruption which probably was a reaction to the arsenical. In view of the rapid downhill course, despite all therapy, I think that arsenical hepatitis certainly outweighs the other possibilities, and I believe that this patient's liver will show rather extensive necrosis throughout, such as is seen in acute yellow atrophy.

Dr. Callaway's Diagnosis

Acute yellow atrophy of the liver, due to arsenical hepatitis

DR. FREDERIC M. HANES: Dr. Callaway's clear analysis and conclusions have doubtless convinced all of us that this is an instance of acute yellow atrophy, due to the poisoning of the liver cells by arsenic. Such a diagnosis is rather shocking, as are all therapeutic accidents, but it should impress us anew with the serious dangers attending the use of arsenical compounds in therapy. The physician using arsenicals should never forget that he is employing one of the deadliest of all poisons, and he should be alert to the least evidence of intolerance or over-dosage. Arsenical dermatitis is bad enough, but hepatitis and encephalitis are often rapidly fatal.

Anatomical Discussion

DR. SPRUNT: At autopsy the skin was jaundiced and numerous petechial hemorrhages were seen. The heart was enlarged, weighing 750 Gm. There was insufficiency of the aortic valve, due to syphilis, which also involved the aorta and partially occluded the coronary arteries. There were a number of petechial hemorrhages on both epicardium and endocardium. The lungs were edematous and there was some chronic passive congestion. A few focal areas of broncho-pneumonia were found and also some small hemorrhages on the pleura.

The liver weighed 1200 Gm. and was intensely jaundiced. Extensive necrosis was

seen throughout. The only intact cells were in the periportal region. In spite of the extensive necrosis there was no cellular infiltration except for a few macrophages in the periportal region.

The kidneys each weighed about 350 Gm. They were markedly swollen. Microscopically they showed a small amount of arteriolar sclerosis, and some damage to the glomeruli. The blood vessels and glomeruli contained some visible fat, but fat was most strikingly present in the convoluted tubules. There was also a large amount of bile in the tubules.

The other organs, including the brain, showed little except chronic passive congestion.

Death in this case was obviously due to the necrosis of the liver (acute yellow atrophy). Although we cannot prove it, we believe the cause to have been the arsenical therapy, particularly since the arsenic was continued after the onset of symptoms. The damage to the liver resulted in the accumulation of bile in the circulation, with excretion by the kidney and marked damage to the kidney.

In addition to these findings there was some vascular damage to the kidney with resultant cardiac hypertrophy, and also a syphilitic involvement of the aortic valve and the coronary orifices which led to cardiac failure and chronic passive congestion of the viscera.

Anatomical Diagnosis

Syphilitic aortitis with involvement of the aortic valve and partial occlusion of the coronary orifices

Acute yellow atrophy of the liver
Jaundice
Petechial hemorrhages
Bile nephrosis
Mild arteriolarsclerotic nephritis
Cardiac hypertrophy and dilatation
Generalized arteriosclerosis
Chronic passive congestion of the viscera
Pulmonary edema
Terminal broncho-pneumonia.

There can be no such thing as chronic pulmonary tuberculosis without a first infection. However, it is not usually the first infection that is important—what matters most is the subsequent superinfections and reinfections which should be guarded against in the infected group.—David Zachs, M.D., Jour. of School Health, June, 1942.

MEDICOLEGAL ABSTRACT

J. F. Owen, M. D., LL. B.
Raleigh

Abortion: Statutory provisions are made for two separate offenses. Proof must conform to the allegations.

This is a criminal case in which a doctor was charged with performing an operation upon a woman "quick with child", with intent thereby to destroy the child.

Upon the trial in Superior Court the evidence of the State tended to show that the pregnant girl, 15 years of age, became pregnant in January, 1942, and that the operation was performed on March 28, 1942—after a period much shorter than half the term of pregnancy, at which time there is supposed to be quickening of the child. The operation which brought about the abortion was not necessary to preserve the life of the woman upon whom the operation was performed. It was also brought out in the testimony that this operation was performed by the physician for a stipulated fee.

The defendant in the case plead not guilty, offering evidence tending to show an alibi, upon which he relied as a defense. When the State rested its case the defendant moved to dismiss the case by a judgment as of nonsuit. The motion was denied, and the defendant excepted; again at the close of all the evidence the defendant renewed his motion for judgment as of nonsuit. Motion was denied, and again he excepted.

The verdict of the jury in this particular case was that of guilty, and the defendant was sentenced to serve in the State's prison for a period of not less than two and one-half or more than five years, and assigned to such labor as provided by law. The defendant appealed to the Supreme Court, and assigned error.

When this case came on to be considered by the Supreme Court, the Justice writing the opinion called attention to the fact that in this state there are two separate and distinct statutes pertaining to abortion, one of which makes it unlawful to administer drugs to or perform an operation upon a woman "either pregnant or quick with child with intent thereby to destroy the child." The other statutory provision with reference to abortion makes it unlawful to administer drugs to or to perform an operation upon "a pregnant woman with intent thereby to procure the miscarriage of such woman, or to injure or destroy such woman." Greater punishment is prescribed for a violation of the provisions of the first mentioned statute than for a violation of the latter. Manifestly, it was the intention of the Legislature to declare two separate offenses.

The question then arose as to how far pregnancy should be advanced before the child is considered capable of being destroyed. While, for many purposes, a child in **ventra sa mere** is supposed in law to be born, Blackstone states that "life begins in contemplation of law as soon as an infant is able to stir in the mother's womb."

The evidence tended to show that pregnancy in this particular instance had not advanced to the extent that there was quickening of the child, proof of which was required by the statute under which the bill of indictment was drawn. The proof, according to the opinion of the Justice, did not conform to the allegations. For that reason the defendant's motion for judgment as of nonsuit should have been granted. Therefore the judgment of the Superior Court was reversed.

Although there are statutory provisions in North Carolina for two separate offenses, as far as abortion is concerned, depending upon the progress of gestation, there is very little consolation for one engaged in this type of surgery, inasmuch as both offenses are felonies. Upon conviction there is a rather severe sentence invoked, consisting of terms in the State's prison and of course the probability that the convicted person would have his license revoked. (Vol. 222, Page 537. Decision rendered January, 1943.)

Schedule For Twenty War Sessions Announced by American College Of Surgeons

New developments in military and civilian medical and hospital service will be brought to members of the medical profession at large, and hospital representatives, through a series of twenty War Sessions, beginning March 1, to be held throughout the United States under the sponsorship of the American College of Surgeons with the cooperation of other medical organizations and of the Federal medical services.

Each War Session will consist of an all-day program, lasting from 9:00 o'clock A. M. to 10:00 P. M., including luncheon and dinner conferences. There will be eight meetings in each session, four of which will be for the entire assembly, and the remainder divided into two meetings each for physicians and for hospital representatives. Subjects will be similar in the different places but some of the speakers will be changed in the different states and service commands. Nationally known representatives of the United States Army, the United States Navy, the United States Office of Civilian Defense, the United States Procurement and Assignment Service, and the United States Public Health Service, will address the meetings and will lead discussions, in addition to participation by prominent leaders in civilian medical practice and hospital service.

Topics to be discussed relating to military medicine will include care of the ill and injured in combat zones and after evacuation. The newer types of injuries encountered in this war, such as crush and blast injuries, will be especially considered, together with prevention and treatment of infections, and treatment of burns, shock, and injuries of specific parts of the body. Anesthesia, plastic surgery, and the psychoneuroses of war, will be some of the other topics. Problems of civilian medical care in wartime which will be discussed will include the responsibilities of individual doctors and hospitals; personnel problems of hospitals; organization of emergency medical services; maintaining adequate supplies, furnishings, and equipment; maintenance of high standards of medical and nursing education, and of hospital service in general; hospital public relations; and administrative adjustments in professional staffs of hospitals. The opening meeting of each session will be devoted to discussion of "Medical and Surgical Aspects of Chemical Warfare," led by a representative of the United States Office of Civilian Defense, and the closing meeting will be a panel discussion on problems in wartime civilian medical practice to be led by representatives of the United States Public Health Service, the American College of Physicians, the American Medical Association, medical services in industry, and the American College of Surgeons. Some of the topics for consideration at this meeting will be endemic and epidemic diseases, including tropical diseases; medical services in industry; medical and surgical practice; and supplementary postgraduate education for medical officers and civilian doctors.

The War Sessions for North and South Carolina will be held in Charlotte at the Charlotte Hotel, on Monday, March 22.

The American College of Surgeons cancelled its 1942 national meeting and is holding in abeyance plans for a Clinical Congress in 1943, in the meantime offering the regional meeting plan provided by the War Sessions to save the time of the doctors and other personnel, and to minimize transportation difficulties, without sacrificing unduly during wartime the educational and stimulative benefits of medical assemblies.

Medical Meetings During the War

Mr. Stephen McDonough, Washington, in a letter to Mr. C. P. Loranz, Secretary-Manager, Southern Medical Association, just prior to the Richmond meeting of the Association in November, 1942, said:

> "Last Friday I rode over from the Munitions Building to the new Pentagon Building with Dr. Vannevar Bush, Director of Scientific Research and Development, and I mentioned the holding of scientific meetings in wartime. He said: 'Physics meetings? No. Chemical Society meetings? No. Medical meetings? By all means they should be continued with even greater emphasis than before. We must preserve and disseminate advances in medical knowledge as never before.' If you need any better opinion than that I don't know where to find it."

Our information is that Dr. Vannevar Bush is President of the Carnegie Institution of Washington, a research organization, was formerly President of the Massachusetts Institute of Technology, and is one of the greatest living electrical engineers. He built the differential analyzer, a mechanism that solves the most intricate differential equations, and the network analyzer to solve power transmission problems, two of his most notable scientific contributions in his field of work.

Mr. Stephen McDonough, prior to late summer of 1942, was for a number of years Science Writer for the Associated Press. He covered the annual meetings of the Southern Medical Association for the Associated Press for some six years prior to and including the St. Louis meeting in November, 1941. Since late summer of 1942 he has been serving his country as a Captain, U. S. Army, Office of Chief of Ordnance, Washington.

Announcement From American Red Cross Headquarters

Dr. John F. Busch has been appointed Director of Medical and Health Service for the Eastern Area of the American Red Cross, with headquarters in Alexandria, Virginia. North Carolina is included in this area. Dr. Busch has been associated with the Division of Tuberculosis Control of the Georgia State Department of Public Health since 1937. Before that time he was engaged in general practice in Spartanburg, South Carolina.

BULLETIN BOARD

News Notes From the State Board Of Health

Our infant mortality rate in North Carolina last year was the lowest on record. In 1941 there were 5,073 deaths among infants under a year old, with a rate of 59.4 per one thousand live births. In 1942 the total was only 4,281, in spite of the marked increase in the number of births, and the infant mortality rate dropped to 47.5 for the entire year, throughout which there was a sustained downward trend.

Not only was the infant mortality rate in North Carolina last year the lowest on record, but the same was true of the general death rate, which was 8.1. There also was a sharp decline in the total number of deaths, which was only 29,613, as compared with 32,154, during the preceding year.

Note the two extremes that marked North Carolina's vital statistics for 1942—the greatest number of births on record, and the lowest death rate. It is interesting to note that there were 60,443 more births than deaths recorded.

During the year there were only 21 deaths from typhoid fever, a disease which, during the War With Spain in 1898, claimed more victims than did Spanish bullets, while the total number of deaths from influenza, which wrought such havoc during the First World War, was only 296, as compared with 902 in 1941.

There was also an appreciable reduction in the number of deaths from tuberculosis in all forms, the 1942 total having been only 1,578 for the entire State, as compared with 1,769 in 1941, the rate having fallen in a single year from 48.8 to 43 per 100,000 persons. There was a sustained decline in the number of pneumonia deaths, which last year totaled only 1,677, as compared with 1,896 in 1941, bringing the rate down from 52.3 to 45.8 per 100,000 inhabitants.

There was a sharp decline in deaths from diarrhea and enteritis among children under two years of age, the 1942 total having been only 464, as compared with 692 the preceding year, bringing the rate from 19.1 to 12.6 in twelve months.

Appreciable decreases were recorded in the number of both suicides and homicides, while the number of deaths from what are termed preventable accidents was only 1,513, as compared with 1,862 in 1941. This total was materially affected by the downward trend in traffic deaths, which has been very noticeable since rationing began and since the speed limit has been reduced.

Deaths attributable to air transportation accidents, however, increased from 92 to 104; from accidental burns, from 213 to 220; and from traumatism by firearms, from 74 to 91, while the number of persons accidentally drowned increased from 143 to 182.

* * * *

During the first World War there were 157,146 more new cases of syphilis and gonorrhea among the soldiers, sailors and marines of the United States than there were wounds in battle itself. Total absences from duty, due to venereal diseases, kept the equivalent of 20,600 men out of the fighting for a whole year—men trained for their country's service, men upon whom their country counted for its defense. Think of such loss in terms of today's hard-held battlefronts. Twenty thousand men would mean five huge aircraft carriers and nine destroyers. Think of what those carriers would mean in the battle of the Pacific, what vital protection these destroyers would give our ships in the battle of the Atlantic.

Doctor Eliot Ness, Director of Social Protection, Office of Defense Health and Welfare services, is authority for the statement—made at a conference in this State recently—that out of the first two million men examined for military service in the present war, 100,000 had to be deferred because of syphilis. The Army and the Navy, he continued, felt that to get the best results, there had to be cooperation among the civilian communities, as one-third of the venereal diseases could be traced to towns and cities sometimes 200 miles from camps. In many sections, he declared, segregated, or red light, districts were found to exist, often with the approval of the police officials. He declared that segregation is the worst kind of control; that it is medically, as well as morally, unsound. Where segregated districts have been closed, Dr. Ness pointed out, venereal disease rates have decreased and conditions in communities where these districts formerly existed have become more orderly.

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Dr. Donnell B. Cobb, President of the Medical Society of the State of North Carolina, has issued the following statement with regard to the proposed setting up of a central supervising board for hospitals for the mentally sick:

"Some months ago the committee appointed by Governor Broughton to investigate the Morganton State Hospital made its report. It was found that North Carolina, who prides herself on many things, was forty-fifth among the forty-eight states in the amount it spends for the care and treatment of the helpless insane. Certainly this is something of which we can not be proud.

"Acting upon the recommendations of the Governor's investigating committee, a bill has been introduced in the legislature to set up a North Carolina hospital board of control to supervise the Morganton, Raleigh and Goldsboro Hospitals and the Caswell Training School in Kinston.

"The physicians of North Carolina endorsed the recommendations of this investigating committee and they are in accord with the idea of setting up a central state supervising board. Success of such a central governing board depends entirely upon how it is set up and who constitutes its members.

"The creation of this board will, in all probability, determine the administration of mental institutions and the care of mental patients in North Carolina for the next quarter of a century. During recent years a marked change has occurred in the general attitude toward mental sickness. In quite a few states laws have been drafted and boards have been set up in accord with the viewpoint of modern psychiatry, that mental illness is a medical problem and is as susceptible to prevention, treatment and cure as human sickness in general.

"The recommendations of the Morganton Investigating Committee and the creation of an efficient central board can not accomplish all that is needed for the incarcerated and helpless mentally sick. There must also be a reawakening of official and individual state wide interest in these most unfortunate individuals. Every effort should be made to prevent mental sickness and, too, to return as many of the mentally sick as possible to a useful place in Society.

"In the betterment of existing conditions the Medical Profession is intensely interested and it desires to work with the Governor in this effort to make the care of mental patients something of which the State of North Carolina can be very proud."

Maternity Summer Session University of North Carolina

For preparation in maternity service, graduate nurses are invited to attend the Summer Session at the University of North Carolina. "The Public Health Nurse in a Maternal Health Program" will be offered to Public Health Nurses during the first Summer Session at the University of North Carolina at Chapel Hill, June 7 to 27, 1943. The Department of Public Health Nursing, through the School of Public Health, will direct the activities. Miss Louise Zetzsche, Supervisor of Maternal and Infant Welfare, Denver Visiting Nurse Association, Denver, Colorado, will be guest instructor. Four and one-half quarter hours of credit will be awarded upon completion of the course. For further information, write to Miss Margaret Blee, Assistant Professor of Public Health Nursing, Department of Public Health Nursing, School of Public Health, University of North Carolina, Chapel Hill, North Carolina.

News Notes From the North Carolina Tuberculosis Association

Annual Meeting Called Off

At a meeting at the Carolina Hotel in Raleigh on the evening of January 21, 1943, the Executive Committee of the North Carolina Tuberculosis Association weighed carefully the question of holding an Annual Meeting this spring. Because of the expressed desire of the Office of Defense Transportation that travel be limited to the lowest practicable minimum, it was decided to dispense with the usual Annual Meeting and arrange for the business of the Association and problems of control of tuberculosis to be handled at a meeting of the State Board of Directors, to be held probably some time in May. This is in line with the action of the National Tuberculosis Association, which has cancelled its Annual Meeting for the same reason.

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"The Eastern North Carolina Sanatorium opened its doors to patients on January 15, 1943, as the transfer of seventy patients from the northeastern counties, who were receiving treatment at the North Carolina Sanatorium, began. Forty-three patients from the Main Division of the North Carolina Sanatorium and twenty-seven from the Negro Division were moved during the first few days of operation. Dr. H. F. Easom, Associate Superintendent and Medical Director of the new hospital, said that more than a hundred patients are eligible to be moved from the North Carolina Sanatorium but that transportation difficulties might cause a delay in the transfer. After the transfers are made, the hospital will receive two or three patients a day until the remaining beds are filled, Dr. Easom said.

"The State's new sanatorium for the treatment of tuberculosis consists of separate units for white and negro patients, with a present capacity of 110 beds in each unit. The buildings were completed last fall and dedicated on September 23 at ceremonies at which Governor J. Melville Broughton was the main speaker. The actual operation was delayed on account of difficulties in securing some of the equipment.

"No special ceremonies marked the opening of the hospital on January 15. Dr. P. P. McCain, Superintendent of North Carolina Sanatoria, was in Wilson to supervise personally the transfer of the patients and the opening of the hospital."—The Sanatorium Sun.

The most important advance in tuberculosis control in the State during the past two years, according to Dr. P. P. McCain, was the building of the Eastern North Carolina Sanatorium, with 110 beds for white and 110 beds for negro patients. In addition five counties, Wilson, Anson, Alamance, Wayne and Martin, have opened sanatoria and the Wake County Sanatorium has added 30 beds. These local units have a total of 64 beds for white and 80 beds for negro patients, which together with the Eastern Sanatorium makes 364 new beds added in two years. There are now 23 counties which have their own sanatoria with a combined bed capacity of 521 for white and 417 for negro patients.

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Officials of the Red Cross Sanatorium in Wilmington report that disturbances from airplanes will soon force the closing of the hospital which, since the government has established so many war activities in Wilmington, is now surrounded by an air field. Attempts to find quarters for patients have so far been unsuccessful because of the crowded living conditions in the area. Dr. J. C. Wessell, Medical Director of the sanatorium, has expressed the hope that money can be secured for building a new hospital as soon as materials are available.

* * * *

Word has just been received that Mr. Page, formerly with the North Carolina Tuberculosis Association, has successfully completed training in Officer's Candidate School at Fort Benning, Georgia, and has been commissioned as a lieutenant. He is now located at Camp Croft, Spartanburg, S. C.

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Dr. H. A. Pattison's new volume, **Rehabilitation of the Tuberculous**, is now ready for immediate mailing. Based on his quarter century of first hand experience and visits to foreign rehabilitation projects, the book covers many aspects of a most complicated problem, including psychological factors, placement and compensation. Compact, yet comprehensive, **Rehabilitation of the Tuberculous** will amply repay the most careful reading by every health worker. The price of the book is $2.00.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

Dr. Tinsley Harrison, Professor of Medicine, spoke at the Founder's Day exercise of the Duke Chapter of the Phi Chi Medical Fraternity on February 24. Dr. Harrison held a clinic at 11 a. m. on 'The Differential Diagnosis of Pain in the Chest", and in the evening spoke on "Cardiac Dyspnea".

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Dr. Wingate M. Johnson, Professor of Clinical Medicine, spoke before the Richmond Academy of Medicine at Richmond, Virginia, on March 9. His subject was "J. Marion Sims: Medical Pioneer".

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Dr. Arthur Grollman, Research Professor of Medicine, gave a talk on "Experimental Studies in Hypertension" before the Duke Medical Society in Durham on March 9.

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A paper by Dr. William Allan and Dr. C. Nash Herndon, of the Department of Medical Genetics, was presented before the regional conference of the American Association on Mental Deficiency, held in Atlanta on March 10. The title of the paper was "Some Examples of the Inheritance of Mental Defect".

News Notes From the University of North Carolina

Dr. William deB. MacNider presented a paper on "The Susceptibility to Injury of Liver and Kidney Epithelium—A Consideration of the Factor of the Age of the Organism" at the meeting of the American Division of the Club for Research on Ageing in New York on February 13. Dr. MacNider is Chairman of the Club.

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Dr. Russell L. Holman, Professor of Pathology, and Dr. D. A. MacPherson, Professor of Bacteriology, will attend the courses on Tropical Medicine at the Army Medical School and Tulane University, respectively, during the months of March and April, which are financed through the generosity of the Markle Foundation.

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Dr. R. T. Shields, formerly of Cheeloo University School of Medicine, China, has joined the Department of Pathology as Acting Associate Professor to replace Dr. Clark E. Brown, now on duty with the Navy Medical Corps.

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The new Naval Infirmary was formally opened on February 8. This building is of fire-proof construction, is splendidly equipped, and has a bed capacity of approximately 100. It is situated to the rear of the present Medical Building and will be available for University needs after the war.

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Dr. W. R. Berryhill attended a meeting of the Council on Medical Education and Hospitals in Chicago on February 15 and 16.

Cabarrus County Medical Society

Dr. James F. O'Neill of the Bowman Gray School of Medicine spoke to the Cabarrus County Medical Society at its meeting on February 16, held at Concord. Dr. O'Neill gave "A Survey of Patients Seen and Treated for Carcinoma of the Lung Over a Fifteen Year Period".

Columbus County Medical Society

Dr. R. B. Whitaker of Whiteville was elected president of the Columbus County Medical Society at its January meeting. Dr. Thurston Formyduval of Whiteville was named vice president, and Dr. W. A. Greene of Whiteville secretary and treasurer. Henceforth the society will meet only four times a year, instead of monthly. The meetings will be held on the second Monday night of each quarter.

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting on February 9 in Winston-Salem. Dr. S. D. Craig, State Chairman of Civilian Defense, and Colonel Dwar, in charge of Civilian Defense Affiliated Base Hospitals, spoke on the organization of affiliated base hospital units for emergency care of civilians. Members of the program committee presented a program on "What Was New in Medicine in 1942". Dr. Tinsley Harrison discussed advances in medicine; Dr. Arthur Grollman, advances in chemotherapy; Dr. W. H. Sprunt, surgery; Dr. Fielding Combs, nose and throat; Dr. Ruth Henley, obstetrics; Dr. James F. O'Neill, the technique of operation for cancer of the stomach; and Dr. R. A. Moore, the Kenny treatment of poliomyelitis.

Haywood County Medical Society

The Haywood County Medical Society held its regular meeting on February 18. Dr. M. B. H. Michal read a paper on "Infant Feeding".

National Health Advisory Council

A National Health Advisory Council was organized in Washington on February 5 to project and carry out a broad program looking to health conservation as one of the most important factors in winning the war. The Council was created by the Chamber of Commerce of the United States to consider national health problems in relation to the war program.

The National Health Advisory Council will serve to channel approved technical health information developed by the country's many scientific associations to business organizations and their members throughout the country, so there may be brought about a better public understanding and appreciation of medical science as a means of safeguarding public health to win the war. It will work through the Chamber of Commerce of the United States as a central organization, which, in turn, will work through its far flung membership of trade associations, chambers of commerce and corporations and firms. The Council's membership starts with thirty of the nation's leading medical and health authorities. This membership will be increased as the work progresses.

American College of Chest Physicians Cancels 1943 Meeting

The following resolution was adopted by the Board of Regents of the American College of Chest Physicians at their Mid Winter Meeting at the Palmer House, Chicago, February 14, 1943.

WHEREAS: The American Medical Association has cancelled its annual meeting for the year nineteen hundred and forty-three; and

WHEREAS: The American College of Chest Physicians has since its inception held its meetings jointly with the annual meetings of the American Medical Association,

BE IT RESOLVED, That the Board of Regents of the American College of Chest Physicians meeting in Executive Session in the City of Chicago on the fourteenth day of February in the year nineteen hundred and forty-three, hereby proposes that the 1943 annual session of the American College of Chest Physicians be cancelled and that the reasons for the cancelling of this meeting are the same as those advanced by the Executive Council of The American Medical Association.

It was recommended by the Board of Regents that wherever feasible, State and District Chapters of the College arrange to meet jointly with their State and District Medical Societies and assist in preparing scientific programs concerning the specialty of diseases of the chest.

Dr. Karl Schaffle, Asheville, is the Regent of the American College of Chest Physicians for the Southeastern States.

Urological Research Prize Not To Be Offered This Year

The $500 Research Prize annually offered by the American Urological Association will not be awarded this year, and plans for the June meeting of the American Urological Association in St. Louis have been cancelled.

American Association on Mental Deficiency

The regional conference of the American Association on Mental Deficiency was held in Atlanta, Georgia, on March 10. Dr. W. T. Parrott of Kinston, Superintendent of the Caswell Training School, is regional chairman and presided at the conference. Mr. E. M. Brown, of the Caswell Training School, is regional secretary.

Announcement From California State Personnel Board

Qualified applicants are desired for two important civil service positions with the California State Department of Institutions. The two examinations to be given are for Assistant Medical Director and Superintendent, Mental Hospital. Because of the importance of these two positions, the tests will be conducted on a nation-wide basis and will be open to both men and women who are qualified.

Resolutions From the Pinellas County Medical Society, Inc. (Florida)

The Pinellas County Medical Society, in executive session on February 5, 1943, passed the following resolutions:

1. That there is at the present time no actual shortage of physicians in this county.
2. That we are opposed to the licensing of or granting temporary permits to physicians who have not provided themselves with licenses through the regular channels provided by the laws of the State of Florida.
3. That we are squarely behind the State Board of Medical Examiners in their efforts to protect the interests of Florida licensed physicians, both at home and in the armed services.
4. That our Senators and Representatives be contacted and urged to oppose any attempt to break down or alter our system of medical licensure.
5. That a copy of these resolutions be sent to the President and all other officers of the Florida Medical Association, to each member of the Board of Governors, the Board of Past Presidents, the Committee on Legislation and Public Policy, the State Board of Medical Examiners, the Secretary of every component County Society, the Editor of the Journal, the Governor of the State of Florida, the Secretary of each State Society in the United States and to every State Journal.

W. C. McConnell, President
A. M. Feaster, Secretary.

News Notes

Dr. Thomas Stringfield, II, of Waynesville was married to Miss Harriet Cutler Coburn of Asheville on February 3.

Tuberculosis is increasingly becoming a disease of older, occupied men. So much emphasis has been placed on tuberculosis as a serious disease of girls and young women that its greater havoc among men has not received the attention that it deserves. As a result of the more rapid decline of tuberculosis in females in this country there are today 132 deaths among males to every 100 deaths in females, and only at ages ten to thirty is the mortality higher in females.—From the Modern Attack on Tuberculosis by Henry D. Chadwick, M. D. and Alton S. Pope, M. D.

AUXILIARY

A TRIBUTE FOR DOCTORS' DAY

We write voluminously about great agressors and their bloody trails but few know of those men who fought for years, many losing their lives in the battle to make life safe. We honor Columbus and others because they sailed unknown seas and discovered new lands. Who honor those men who for years, with the unknown before them, submitted to experiments on themselves and discovered the microbes which defend them, often losing their lives to prove their observations and beliefs?

Kings and warriors have changed our destinies, but the Medical Profession and its protection have shaped and changed our civilization. Remove it today, and the speed of modern transportation would increase the ravages and the desolation of pestilences which destroyed other generations.

When illness comes, does the watcher at the bedside want to hear of statesmen and soldiers? No! The words which flood her being with relief and hope and courage come from the observer at the window, "The Doctor has come!" In those four words, the accumulated medical knowledge and experience of all times come to our protection and relief.

History is unjust and inadequate when it omits these benefactors and pioneers. The every-day world knows nothing or little of the weary pace of uncounted doctors, uncomplaining, unknown, unsung, whose work is their glory. We, your wives and families, realize this and we believe that the knowledge of the valiant struggles and sacrifices which have been endured to protect communities and guard individuals should be promulgated.

Today, we honor the pursuers of truth, the practitioners of the Medical Arts wherever they have lived, and regardless of time. We salute YOU, our husbands, our physicians! If the only certain happiness is doing good, then your satisfactions are unique. You preside in the struggle of life over death and ask neither notice nor appreciation. Space or time do not limit the giving of yourselves, and your reward is the inward rejoicing that you have done your best. As Physician and as Citizen, again we salute you, and pray that we may walk through the years beside

you, our love and respect sustaining you until we may enter with you into the Living Peace.

MRS. JOHN BONAR WHITE.

DOCTORS' DAY — MARCH 30

In these troubled days it will be well for us—the members of the Auxiliary to the Medical Society of the State of North Carolina—to pause, for a few moments, in the busy routine of "war time America" to take notice of the wonderful work our husbands and fathers are doing for suffering humanity.

A few years ago a movement was inaugurated by the Southern Medical Auxiliary to set aside March 30 every year as "Doctors' Day", and it is the opinion of many of us in this Auxiliary to the State Medical Society that there can never be a better time than this year to show our appreciation of the self-sacrificing efforts of the medical profession at home, in the camps, and on the fighting fronts.

Even if our days are over-crowded with work that is well worth while, we can in our separate auxiliaries plan some simple way to show the doctors of North Carolina, on that day, that their wives and daughters love them and honor them for their unselfish devotion to their God-given task of healing the bodies and ministering to the souls of men.

Doctors everywhere are not only combatting disease but are proving a bulwark of strength to those who need not only skill but sympathy and encouragement.

It will not be easy to plan a social gathering on Doctors' Day, but we can at least get our doctors together for a meal where they can find a few moments' respite from the strain and stress of a doctor's life. Good food, good music and interchange of ideas would vary the monotony of lives whose whole time is spent in service to their fellow man.

Last year two of our auxiliaries reported having observed Doctors' Day. May we lend our efforts to make this one hundred per cent this year?

We are making an earnest appeal to each auxiliary member in every district to do her part toward this end, and we feel that it will be done and done well.

MRS. J. B. CRANMER.

BOOK REVIEWS

Diseases of the Breast. Diagnosis, Pathology and Treatment. By Charles F. Geschickter, M.A., M.D., Director of The Francis P. Garvan Cancer Research Laboratory. With a special section on treatment in collaboration with Murray M. Copeland, A.B., M.D., F.A.C.S. 829 pages with 593 illustrations. Price, $10.00. Philadelphia: J. B. Lippincott Company, 1943.

The author and publishers are to be congratulated for this excellent monograph on the human breast. Our knowledge of the etiology, diagnosis and treatment of mammary diseases has been greatly advanced by recent work in endocrinology, surgery, radiology, pathology and gynecology. Dr. Geschickter himself has been a frequent contributor to the literature on this subject and in this monograph has collected our knowledge in a careful and painstaking manner. The subject as stated in the title is dealt with thoroughly, and this monograph should long remain a source-book for information on the subject. All types of lesions, whether anomaly, abnormality, infection, or tumor, are considered from the physiological and pathological as well as the practical clinical viewpoint. The book can be commended to all specialists as well as to the general practitioner.

The Anatomy of the Nervous System. By Stephen Walter Ranson, M.D., Ph.D., Formerly Professor of Neurology and Director of Neurological Institute, Northwestern University Medical School, Chicago. Seventh Edition, Revised. 520 pages with 408 illustrations, some of them in colors. Price, $6.50. Philadelphia and London: W. B. Saunders Company, 1943.

Ranson's **Anatomy of the Nervous System** has been the outstanding textbook on the subject for the last two decades. The present seventh edition, which was completed just before Dr. Ranson's death, maintains that scholarly thoroughness which has characterized earlier editions. A text of such excellence can emanate only from one who has not only taught the subject but has also contributed to research in the subject. Dr. Ranson, one of the leading neurologists in this country, has left in this book a worthy monument to his work and memory.

Essentials of Gynecology. By Williard R. Cooke, M.D., F.A.C.S., Professor and Head of the Department of Obstetrics and Gynecology, University of Texas. 474 pages with 197 illustrations, including 10 in color. Price, $6.50. Philadelphia: J. B. Lippincott Company, 1943.

This new text fills a long-felt need for a concise outline of the principles of gynecological practice. It covers all the essentials of the subject, with particular emphasis on diagnosis and treatment. There is an appendix describing the various procedures used in operative gynecology. The book is particularly appropriate to the needs of the general practitioner, since it treats of the patient as a whole rather than as a mere adjunct of some interesting pathological process. The publishers have applied the best in their art in making a readable and well

manufactured text. The illustrations are well chosen and helpful, except for some of the microscopic views which, like so many of these, mean little except to the expert microscopist who has no need of them. This new text can be recommended as a student text as well as for the general practitioner in need of revising his knowledge of the subject. The addition of a few references and some consideration of the hormonal aspects of gynecology would improve the value of the book.

A Textbook of Clinical Neurology. By Israel S. Wechsler, M.D., Clinical Professor of Neurology, Columbia University, New York; Neurologist, The Mount Sinai Hospital; Consulting Neurologist, The Montefiore and Rockland State Hospitals, New York. Fifth Edition, Revised. 840 pages with 162 illustrations. Price, $7.50. Philadelphia and London: W. B. Saunders Company, 1943.

In this new edition of a well-known text the author has included a consideration of recent advances in the study of headache, electroencephalography, degenerative diseases, the autonomic nervous system, and the use of chemotherapy in the treatment of meningitis. The book is written from a practical clinical standpoint, detailing methods of examination, diagnostic procedures and therapy. It is clearly written and can be recommended to students and practitioners of medicine who require a working knowledge of clinical neurology. Among the errors noted in the book are the statement that dystrophia adiposiogenitalis is caused by a chromophobe adenoma of the pituitary (p. 508) and that pheochromocytomas are the cause of Cushing's syndrome (p. 509). However, these are common errors in endocrinology and neither reflect upon the primary subject matter of the book nor detract greatly from its value as a textbook of neurology.

Diseases of the Gastro-Intestinal Tract (Oxford Medical Outline Series). By Asher Winkelstein, B.S., M.D., Associate in Medicine and Physician in Charge of the Gastro-Intestinal Clinic, The Mount Sinai Hospital, New York City; Associate in Medicine, (Gastro-Enterology), Post-Graduate School of Medicine, Columbia University, New York City. 195 pages. Price, $2.00. New York: The Oxford University Press, 1942.

The Oxford Medical Outline Series is an interesting experiment; and judging from this sample, it should be a successful one. All the common gastro-intestinal complaints are fully outlined by one whose wide experience fits him to select the essentials and leave out the non-essentials. It covers in full outline form the definition, pathology, etiology, incidence, symptoms, diagnosis, prognosis, and treatment of all the common diseases of the gastro-intestinal tract, and is a valuable means of obtaining a rapid review of the subject without wasting an unnecessary moment. It should be quite helpful to students preparing for examinations and to practitioners who must size up a patient's digestive symptoms without delay.

Contrary to Rumors—

the potency of Mead's Oleum Percomorphum 50% With Viosterol remains the same; namely, 60,000 vitamin A units and 8,500 vitamin D units per gram. Mead Johnson & Company, Evansville, Ind., U.S.A.

Postoperative Vitamin Deficiencies

Prolonged chronic illness followed by sharp limitation of diet during a period of preoperative preparation, especially when surgery of the gastrointestinal tract is contemplated, may result in a state of partial vitamin depletion. Most parenteral fluids routinely contain glucose, which sets up an additional drain on the vitamin B stores in the body. Postoperatively, nausea and vomiting occur frequently and there is often the necessity for complete restriction of food for days at a time.

This sequence of events was clearly reproduced in a case recently reported (Ann. Int. Med., 18:110, 1943). The patient developed a sore tongue and became uncooperative, disoriented, and confused. A dramatic change ensued after administration of riboflavin and nicotinic acid, with complete disappearance of the lesions within five days.

A number of laboratory procedures have been developed in recent years to augment the clinical diagnostic approach to vitamin deficiency disease, but many of them require special equipment and are not easily adaptable for routine clinical use. Physicians may obtain a list of vitamin values of foods and a bibliography of important and generally informative papers on vitamins by writing Eli Lilly and Company, Indianapolis.

New Squibb Capsules Supply Massive Doses of Vitamin D

To provide massive doses of vitamin D for use in the treatment of hypoparathyroid tetany and certain types of rickets, E. R. Squibb & Sons, New York, are now supplying capsules of Viosterol, each containing 50,000 U.S.P. units of vitamin D_2. The capsules are packaged in bottles of 40 and 100.

Clinically, vitamin D may be used to produce either of two effects, depending upon the dosage. In relatively low dosage, it exerts antirachitic activity, while in high dosage, ranging upward from 60,000 units daily, it raises a subnormal serum calcium level and is therefore useful in hypoparathyroid tetany. It is also sometimes administered as a single massive dose in the treatment of active rickets.

In hypoparathyroid tetany, an initial dose of eight or more Squibb Vitamin D Capsules daily is suggested, and a maintenance dose of two or four daily. In obstinate rickets, one capsule daily is recommended; in refractory rickets, one or more capsules daily; and in thoracic rickets, one capsule daily for two or three weeks.

In addition to the new Vitamin D Capsules, Squibb, of course, will continue to supply Viosterol in Oil, one gram of which contains the equivalent of 10,000 U.S.P. XII units of vitamin D.

Army-Navy "E" Presented to Ciba

How American medicine has met many challenging problems imposed by this global war was described by Albert Q. Maisel, war correspondent and author of "Miracles of Military Medicine," at a banquet for employees of Ciba Pharmaceutical Products, Inc., celebrating the presentation of the Army-Navy "E" to the company.

Earlier in the day Brig. Gen. S. V. Marietta, Commandant of Walter Reed Hospital, presented the "E" flag to Mr. J. J. Brodbeck, president of Ciba, and Sam and Carmelo Terranova, father and son who represented employees. Capt. Reynolds Hayden (MC), medical officer of the Third Naval District, presented "E" pins to Miss Helen Danow, Mrs. Grace Furneld, Mrs. Helen Hanlon, Miss Gertrude Hayes, Harry Bosshard and Rheinhold Uebele, acting for all employees.

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THE MILITARY ENVIRONMENT PRIMARILY IN RELATION TO CHANGES IN BAROMETRIC PRESSURE AS APPLIED TO CLINICAL MEDICINE

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LECTURE III:
FITNESS FOR THE MILITARY ENVIRONMENT

A consideration of the adverse factors in the military environment makes it apparent that a routine examination of the rested individual will not reveal his ability to withstand such debilitating agents as extremes in temperature and pressure, noise and vibration, unaccustomed motion, loss of sleep, muscular fatigue, and confinement in the sealed or partially sealed spaces aboard surface craft or in submarines, tanks, or underground fortifications. These forces tend to produce physical and psychic trauma that elicits basic traits in personality and conduct not apparent when the individual lives in a normal environment.

Although the medical officer cannot detect those subtle and elusive biochemical changes in the *milieu interieur* occurring normally, certain functional responses are amenable to measurement by the trained observer.

Our immediate interest lies in the determination of the amount of work or degree of extra effort that the individual is capable of without its bringing about permanent injury or breakdown.

The Nathalie Gray Bernard Lectures presented at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C. The contents of this paper are not to be interpreted as an official expression of the Navy Department.

Lectures I and II were published in the March issue of the NORTH CAROLINA MEDICAL JOURNAL.

In the study of high temperatures in relation to efficiency, conducted aboard ship several years ago, it was at first believed that psychomotor tests would reveal a linear decrease in performance. Much to our surprise efficiency was maintained at a high level despite the abnormal temperature environment, and naval personnel failed to perform their tasks satisfactorily only when physical collapse supervened (fig. 9). It appeared, however, that compensatory effort was a prime factor in maintaining efficient performance under the adverse conditions. The mental attitude and stability which underlie such effort therefore become our first concern.

Psychic Stability

In deep sea diving, for example, men inhibited by the narcotic action of compressed nitrogen work under a handicap that acts as a "load" on the nervous system. The stable diver at great depths will show an increased reaction time, but he will accomplish, or attempt to accomplish his task. The unstable individual, on the other hand, may ignore entirely his task when, at a depth of 250 feet, he finds himself endowed with personality and specialized ability that may be vocal, pugilistic, or narrative. He is in effect intoxicated and his functional value has been de-



Fig. 9. Efficiency in performance of duties under the influence of adverse environments tends to be maintained by compensatory effort along curve A rather than B. An abrupt decline at X signifies physiologic breakdown.

stroyed by the suppression of a few of the higher centers of cerebration.

The problem of making an estimate of an individual's potential or actual ability is so complex that we can at this time indicate only an approach to the solution, which is essentially to record individual response to an adverse but controlled environment made possible by the employment of such instruments as the pressure chamber.

One may employ anoxia, for example, as a suitable stress to elicit compensatory effort. In the low pressure chamber the individual normal at ground level is subjected to an impairment similar to that associated with nitrogen narcosis.

Although complex psychic and somatic factors govern response to anoxia, our interest lies in the estimate of functional ability under controlled conditions. The decisive factor is whether or not the individual under reproducible conditions accomplishes outlined endeavor in an allotted time period.

Claustrophobia

If the present naval environment differs greatly from that of the last war, it is in regard to the necessity of confining men within small spaces. The maintenance of the water tight integrity of ships requires multicellular structure in which occupants are confined within limiting walls as closely as are nuclei in cells.

Although signs of claustrophobia may rarely be manifest under ordinary conditions, weeks and months of restriction may give rise to a series of emotional disturbances. If the factor of darkness is added to that of restriction, the combined stresses act to create a form of anxiety neurosis.

A suggestion as to a means of eliciting the claustrophobic tendency arose from the observation of men who wore rubber helmets excluding light. Unstable men could not tolerate the dark helmet, at least over a period of hours. The pressure chamber also serves to uncover this particular weakness, expressed as an obvious emotional disturbance and recorded in terms of elevated pulse rate.

Evaluation of Physical Fitness

The Teeth:

It is easy to overlook the obvious and fail to realize the importance that dentition plays in fitness for military duty. An examination of the dentition and state of oral hygiene is one of the oldest, quickest, and most reliable methods of appraising basic health and hygiene.

Employment of the Pressure Chamber in the Diagnosis of Aural and Sinal Infection:

Mention has already been made of the utilization of pressure chambers in detecting congestion and obstruction in auditory tubes and sinal passages. The ability to tolerate pressure at the rate of 30 pounds per square inch per minute—equivalent to diving to a depth of 66 feet—indicates freedom from acute and chronic or subclinical infection of the upper part of the respiratory tract. When one considers the prevalence of nasopharyngeal infection it may not be amiss to consider the chamber procedure as a presumptive test for general physical fitness.

Ten years ago, out of a group of 453 men, 59 or 13.2 per cent were unable to equalize pressure in one or both ears. Of the 59 disqualified men, 53 were found to have thickened and retracted tympanic membranes. Only 6 men with normal tympanic membranes were unable to equalize pressure.

At present about 6 per cent of the candidates for submarine escape training fail in the pressure test. The pressure chamber affords a means for a controlled test of these individuals.

The Altitude Tolerance Test:

In a group of divers some men will be more susceptible to "bends" than others. It is difficult to determine, even by an extensive physical examination, who the susceptible

individuals are. Consideration was, therefore, given to a test of fitness for diving based on actual decompression.

The removal of nitrogen from the tissues following a dive, without the development of manifest air embolism, appears to depend primarily upon blood supply in relation to body weight, or essentially upon effective blood flow through tissue. Cardiac output in relation to body weight, and the adequacy of collateral circulation would appear to be the important factors in preventing accumulation of air emboli sufficient in number to cause pain or fatigue.

Nitrogen removal is a function of cardiac output. Grollman has determined the relationship between surface area and cardiac output in the basal state. Small mammalian species with a comparatively large surface area in relation to body weight eliminate excess nitrogen so rapidly from their tissues that it is difficult to induce air embolism in these animals by exposure to high pressures. The rate of nitrogen transport in the dog, for example, is double that of man. The dog also tolerates a drop in pressure from 4 to 1 atmospheres, as compared with a drop from 2 to 1 atmospheres tolerated by man.

From empirical data age appears to be an important factor in any given species, the tolerance of young individuals being greater than that of older individuals. Chronological age may not be so important as physiological age. The amount of fat in the body is also a factor in altitude tolerance, but it is not so important as age.

Factors which tend to slow or damage the circulation increase susceptibility to air embolism. Divers engaged in test work, for example, refrain from alcohol for several days prior to a dive. In the history of caisson work some of the most severe injuries have been associated with poor physical condition brought about by previous ingestion of alcohol.

Although we cannot assign proper weight to the various factors that render some individuals more resistant to the development of air embolism than others, for our purpose a pressure test is of prognostic importance.

The decompression test can be conducted in a chamber in which the normal barometric pressure is lowered to simulate a climb of 5,000 feet per minute. The altitudes attained in the test procedure range from 30,000 to 40,000 feet.

Although a great deal is yet to be learned from such tests, valuable data for the classification of divers and aviators have already accumulated. Divers who descended to a depth of 440 feet in the open sea in connection with a recent submarine disaster had previously been tested and found relatively resistant to bends during exposure to a simulated altitude of 40,000 feet.

What remains to be determined is the value of the test as an index of general physical fitness. Does freedom from symptoms following a rapid decrease in pressure sufficient to liberate potential gas emboli throughout the body indicate a basic superiority in terms of cardiac output and effective blood flow through tissues?

Cardiovascular Response and Endurance:

Turning now to a less spectacular form of examination, we may consider a most valuable and readily available index of fitness —namely, the pulse rate recorded uniformly and under controlled conditions.

Since the last war the Schneider index, based essentially upon response of blood pressure and pulse rate to postural change, has proved to be a valuable criterion of fitness in the military service. Frequently, however, the Schneider procedure cannot be carried out precisely aboard ship or in the field.

The objective is to devise a simple, uniform test procedure that measures pulse rate response to a moderate amount of exercise, and physical fitness in terms of muscular endurance.

For the evaluation of cardiac response the exercise chosen conforms closely to the habitual performance of climbing steps. It consists of twenty step-ups on a platform eighteen inches high, performed during a period of thirty seconds. Pulse rates are recorded before exercise, with the subject sitting at rest (A), five to twenty seconds after exercise (B), and one hundred and twenty to one hundred and thirty-five seconds after exercise (C). The cardiovascular score is computed from the expression $B-70+3(C-A)$, according to which the elevation of pulse rate after exercise and the degree of recovery in pulse rate govern the score. The score is rated in the following manner: below 51, good; 51 to 74, fair; and above 74, poor. A good score is not likely to be obtained unless the pulse rate returns to the initial level

within two minutes after exercise. What we are attempting to find out is pulse rate response to *moderate exercise* of an amount such that 50 per cent of men in the military service will obtain good scores.

For the estimation and scoring of muscular endurance, the length of time that the standard exercise can be maintained is recorded in seconds. The pulse rate taken after this endurance exercise serves to indicate the degree of effort put forth. It is not used in the computation of the score.

When these procedures were used to ascertain the results of a three months' program of cadet training, it was observed that there may be no striking improvement in cardiovascular score. Muscular endurance time, however, is proportional to the amount of training. At the Pre-Flight School of the University of North Carolina the average endurance time of the cadets increased during one series of observations from 125 to 432 seconds.

The cardiovascular score serves to regulate the training work load, which is adjusted to prevent adverse cardiovascular effects as determined by the pulse rate.

For a general estimate of fitness in terms of a numerical score Lieutenant (jg) Nello Pace H-V(S), U.S.N.R. has expressed endurance time and cardiovascular score as a ratio to provide an index: $\frac{\text{endurance time}}{\text{cardiovascular score}} \times 10$.

This index serves essentially as an estimate of the fitness of the individual for physical effort. It should serve not only as a guide in a training program to increase muscular endurance but also as an indication of the stamina of the man in the field, and the fitness of the convalescent for duty.

The following examples illustrate the recording and scoring procedure for this test.

Sitting Pulse Rate	*Pulse Rate per Minute 5"-20" after exercise*	*Pulse Rate per Minute 120"-135" after exercise*	*Cardiovascular Score*	*Endurance Time*	*Step Index*
70	120	70	50	120 sec.	24
74	132	82	86	94 sec.	11
62	128	74	58	100 sec.	18
68	128	76	76	42 sec.	6
80	112	82	42	55 sec.	15

The Specific Gravity and the Composition of the Body:

The fact that fat is a good solvent for gases has been a source of grave concern in the field of deep sea diving. Not only in diving but throughout the military service a single criterion of good physical condition might be the absence of excess bodily fat.

Although some excess fat may be beneficial in cold climates or for survival on a life raft, its presence in tropical or semitropical regions tends to act as a "pack load" leading to earlier fatigue and increasing the nutritive requirements in terms of calories.

The problem is to determine what constitutes an individual's proper weight. The standard height-weight tables serve as a guide, but individual variations, especially among big men, serve to make estimates of obesity unreliable if weight is considered solely in relation to body height.

If we are interested in ascertaining the solidity of individuals and the quality of tissue, then there is perhaps no better method than the determination of the relationship between the weight and the volume of bodily substance, or the measurement of the specific gravity of the body as a whole.

This study of tissue density has a naval aspect, in that the volume of the body is estimated on the basis of Archimedes' principle, which states that a body wholly immersed in a fluid is lightened by an amount equal to the weight of the fluid displaced. Hence, the body weight lost in water measures the volume of the body.

The loss of weight in water is actually determined by weighing an individual submerged in water. A correction for the amount of air in the lungs at the time of weighing permits an accurate estimate of tissue density. Fat, possessing the lowest density of any of the body substances, tends to make an individual float. Conversely, lean men tend to sink.

An example of the method of computing specific gravity is given in table 1[1].

Table 1.—Example Illustrating the Method of Computing Specific Gravity[1]

		Pounds	*Kilograms*
Weight of the body in air		183.00	83.20
Weight in water, full inspiration		14.20	6.45
Weight in water, complete expiration		23.20	10.55
Vital capacity computed from the volume of water displaced	4,090 cc.		
Vital capacity by spirometric measurements	4,150 cc.		
Volume of residual air	1,200 cc.		
Weight of abdominal belt		13.75	6.25
Corrections			
Gross weight in water		23.20	10.55
Weight of belt		13.75	6.25
Weight in water, not corrected for residual air		9.45	4.30
Correction for residual air (1,200/453)		2.65	1.20
Net weight in water		12.10	5.50

$$\text{Specific gravity} = \frac{\text{Weight}}{\text{Volume}} = \frac{188}{170.9} = 1.071$$

Table 2.—Specific Gravity in Relation to Weight, Age, Height and Measurements of Thoracic and Abdominal Circumference[1]

Specific Gravity	Number of Men	Average Weight		Range, Pounds	Average Age	Average Height		Average Circumference				Average Difference, Inches	Difference, Range
								Chest		Abdomen			
		Pounds	Kg.			Inches	Cm.	Inches	Cm.	Inches	Cm.		
1.020-1.029	2	233	105.9	221-245	34	68.9	175.0	41.5	105.4	41.6	105.7	—0.1	—0.75-0.50
1.030-1.039	2	187	85.0	174-200	48	71.0	180.3	36.7	93.2	35.9	91.2	0.9	0.75-1.00
1.040-1.049	4	166	75.4	145-184	31	66.9	169.9	38.0	96.5	33.7	85.6	4.2	3.00-5.25
1.050-1.059	20	171	77.7	126-208	33	69.3	176.0	37.2	94.5	33.0	83.8	4.2	1.00-7.25
1.060-1.069	23	158	71.8	131-202	24	68.1	173.0	35.6	90.4	30.3	77.0	5.2	3.25-7.00
1.070-1.079	27	153	69.5	131-199	26	69.4	176.3	35.7	90.7	30.0	76.2	5.6	2.50-8.50
1.080-1.089	14	148	67.3	130-164	24	69.4	176.3	35.7	90.7	29.7	75.4	6.1	2.75-7.75
1.090-1.099	7	140	63.5	125-163	23	69.9	177.5	35.5	90.2	28.6	72.6	6.9	5.25-8.25

Values for the specific gravity of healthy naval personnel range between 1.020 and 1.099 (table 2)[1]:

From the data in table 2, however, it is not certain whether weight itself or obesity is the factor chiefly determining the specific gravity of the body. The lower the value for specific gravity, the higher the body weight. It was, therefore, necessary to examine a group of heavy but lean men. Such individuals are not prevalent, but if they were to be found anywhere it would be in professional football.

An outstanding group of players, the majority of whom had been selected for All-American football teams, were available for study in Washington, D. C.

The average specific gravity of this select group of men was 1.080, but their average weight was 200 pounds—43 pounds above the naval average for a corresponding specific gravity (table 3)[2].

Of interest in connection with these measurements is the fact that the lean, small man and the lean big man had an index in common—namely, a difference of about 7 inches between the circumference of the chest and that of the abdomen (fig. 10). By contrast, in the occasional fat man examined, the abdominal measurement sometimes exceeded the chest circumference. It was concluded that such men may be adapted for flotation but certainly not for deep sea diving.

The Composition of the Body

From these studies one may form a concept of the composition of the body. In the following schematic representation (fig. 11) the body may be looked upon as comprising essentially a lean mass of relatively constant composition, consisting of 75 per cent tissue, 15 per cent bone, and 10 per cent essential fat. The specific gravity of this lean mass may be computed as 1.099, or a value of about the same as that obtained for the leanest man.

If to the essential body mass a layer of fat is added comprising 10 per cent of the body weight, the specific gravity of the combined mass is 1.080, or the average value for the high group of naval personnel and for the football players (table 3). If a second layer of fat is added comprising 20 per cent of the body weight, the corresponding value for specific gravity is 1.062, or the average value for the middle group of naval personnel (table 3). Finally, if fat accumulates to form a third layer so that the excess tissue amounts to one third of the body weight, then the specific gravity is lowered to 1.036.

Table 3.—Low, Intermediate and High Specific Gravity Group Values in Relation to Weight and Circumferential Measurements[2]

No. Men	Average Specific Gravity	Range	Average Weight		Circumference				Difference, In.	Average Height	
					Chest		Abdomen				
			Lb.	Kg.	In.	Cm.	In.	Cm.		In.	Cm.
Naval Personnel											
13	1.051	1.035-1.057	172.3	78.6	37.6	95.5	33.1	84.1	4.5	68.2	173.2
24	1.066	1.060-1.074	156.9	71.3	36.1	91.7	30.6	77.7	5.5	68.5	174.0
38	1.086	1.075-1.096	156.9	71.3	36.5	92.7	29.7	75.4	6.8	69.4	176.3
Trained Athletes (Professional Football Players)											
25	1.080	1.051-1.097	200.6	91.2	40.0	101.6	33.1	84.1	6.9	72.1	183.1

1. Behnke, A. R., Feen, B. G., and Welham, W. C.: The Specific Gravity of Healthy Men, J.A.M.A. 118:495-498 (Feb. 14) 1942.

2. Welham, W. C. and Behnke, A. R.: The Specific Gravity of Healthy Men, J.A.M.A. 118:498-501 (Feb. 14) 1942.

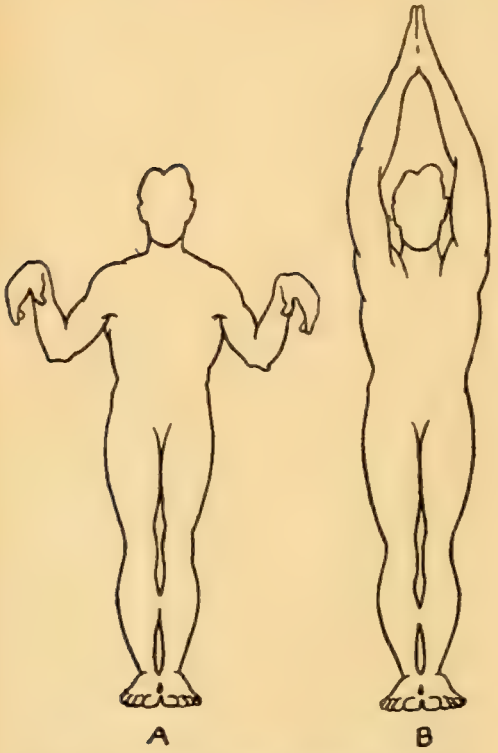


Fig. 10. A represents the position assumed by the subject for measurements of anteroposterior and lateral chest diameter. The measurements were taken at the level of the nipple line. B represents the position assumed for measurements of the circumference of the chest and abdomen. The latter measurements were taken at the level of the umbilicus.
From Welham and Behnke[2].

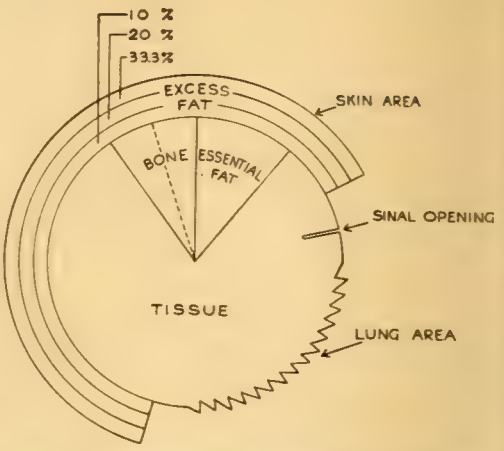


Fig. 11. Schematic representation of the body, showing the volumetric relationship between the excess fat and the true body mass.
The following data form the basis for the diagram:

Substance	Specific Gravity	Weight % Total Mass	Volume % Total Mass
Bone	1.560	15	10.5
Essential Fat	0.940	10	11.7
Tissue	1.060	75	77.8

Specific gravity of the true body mass=1.099

The addition of excess fat amounting to 10 per cent of total body weight reduces the specific gravity of the true body mass from 1.099 to 1.080; 20 per cent additional fat lowers the specific gravity to 1.036.

From Behnke, A. R.: Physiological Studies Pertaining to Deep Sea Diving and Aviation (Harvey Lecture) Bull. New York Acad. Med. 18:561-585 (Sept.) 1942.

The Maintenance of Good Physical Condition

Two groups of men require particular attention. The first group is composed of recruits, especially those men under 21 years of age. These young men still in the growth period may be underweight, and their resistance to communicable disease low, especially if they come from areas where they have not acquired the immunity that develops during close association in the training station. Essentially their regimen must comprise a carefully supervised schedule in which adequate rest and the ample naval diet are important factors. That these principles are in effect in the Navy is evident from the gain in weight, the betterment in health, and the will to accomplishment exhibited by these young men at the end of their first year of service.

The second group that require medical supervision are men over 30 years of age. These men are prone to develop excess weight, and the removal of fat must be carried out by the judicious regulation of diet and usually an extra serving of exercise.

The intermediate group between 21 and 31 years of age is potentially able to engage in a strenuous training program which changes the sedentary individual into an efficient fighter.

The conditioning of men for arduous duty is best exemplified by the program of training conducted at the Navy Pre-Flight Schools for aviation cadets. In this program the principles of athletic competition serve to guide military efforts in the conditioning of men for modern warfare. These men are taught how to win in combat. In peacetime

the system of American athletic competition developed not only stamina and fighting power but purposeful teamwork.

The older group of men who are not candidates for the training required for peak performance must be kept fit by sustained but moderate activity, attaining thereby a durable efficiency on a level devoid of either excessive peak performance or periods of staleness. In our experience such men have been kept in good condition by daily exercise in the form of games. Such exercise, combined with adequate fluid intake, has replaced the noon meal. To mitigate the complicating factor of hunger, reliance is placed on the mobilization of the glycogen stores from liver and skin by the circulating blood.

Thus, a twofold objective is accomplished. The exercise serves to maintain muscular tone and efficiency for required activity, and to replace oral feeding by the less costly parenteral sustenance obtained from the warehouse of reserve glycogen and fat.

Concluding Note

The veteran in the military service is performing his duties as expected, courageously and with initiative, in accord with American tradition. It is the example of youth, however, that leaves no doubt as to the outcome of the war. One needs no more assurance than to witness the transformation of the somewhat frail, homesick, seasick farm boy into a dynamic fighting machine that would engage the enemy with nothing more than a slingshot. The problem is to condition these young men and to afford all possible means of protection for them, so that victory will be achieved with the least expenditure of our most valuable possession.

The health of doctors living in hospitals is an important matter. It deserves careful consideration. Each medical student on graduation from his medical school should receive a card giving a complete report of his tuberculin test and roentgen examinations. Each hospital should make a rule to continue with this record by requiring chest films of its internes at six-month intervals. Large hospitals dealing with vast numbers of patients should go even further. They should require their internes and residents to have chest films at three-month intervals. If a rule of this sort were made general, tuberculosis in the resident staff would be recognized more quickly than it is at present, and unnecessary loss of time spent in treatment would be saved. Reginald Fitz, M.D., Jour. Amer. Med. Assn., Sept. 27, 1942.

ELECTRIC SHOCK TREATMENT OF MENTAL DISORDERS

HANS LOWENBACH, M.D.

DURHAM

> Diseases desperate grown
> by desperate appliance are relieved,
> or not at all.
> HAMLET, Act IV, Scene 3

History

The idea of using convulsions to treat psychotic patients was introduced by L. v. Meduna, in 1935[1]. He proceeded from the observation that convulsive disorders and schizophrenia (dementia praecox) rarely occur in the same person. Von Meduna assumed that the convulsions prevented a high incidence of schizophrenia among "epileptics" and that convulsions artificially produced in a psychotic patient might bring about improvement, if not complete recovery. He provoked convulsions by metrazol, a drug synthesized by Knoll to serve as an analeptic. Von Meduna's results were encouraging and enthusiastic reports soon came forth from psychiatric hospitals all over the world.

In 1938, Cerletti and Bini of Italy announced that they had treated mentally ill patients with convulsions induced by strong electric currents applied directly to the head[2]. That the passage of electric current through the brain causes generalized convulsions was, in itself, not a new discovery. During the first decade of this century Prevost and Battelli[3], two Swiss physiologists, had published the results of extensive animal experiments on this subject. In addition, the literature on electric accidents abounds with observations on the appearance of convulsions following electric exposure. Recently, by means of convulsions electrically induced in animals, Spiegel[4] and Merritt and Putnam[5] gained valuable information

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From the Departments of Neuropsychiatry and Physiology, Duke University Hospital and School of Medicine, Durham.

Based upon a talk made before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Charlotte, May 12, 1942.

1. von Meduna, L.: Die Konvulsionstherapie der Schizophrenie, Carl Marhold, Halle, 1937.
2. Cerletti, U. and Bini, L.: Un nuovo metodo di shockterapia "l'elettroshock", Boll. Accad. med. Roma, 1938, pp. 136-138.
3. Battelli, M. F. and Prevost, J. L. et al.: Travails du laboratoire de physiologie de l'universite de Geneve, mostly in C. r. Soc. Biol. Paris.
4. Spiegel, E. A.: Quantitative Determination of the Convulsive Reactivity by Electric Stimulation of the Brain With the Skull Intact, J. Lab. & Clin. Med. 22:1274-1276 (Sept.) 1937.
5. Merritt, H. H. and Putnam, T. J.: A New Series of Anticonvulsant Drugs Tested by Experiments on Animals, Arch. Neurol. & Psychiat. 39:1003-1013 (May) 1938.

on the effect of anti-convulsive drugs. Krasnogorski[6] used the same method to study the effect of convulsions on animal behavior. To the Italian authors, however, goes the credit for extending this knowledge to the treatment of psychiatric disorders of human beings.

Berkwitz[7] has enumerated early attempts to treat, or rather to intimidate, psychotics with electricity. These attempts, although of considerable interest to the medical historian, can not be compared directly to the procedure as practiced today.

Shortly after the original publication by Cerletti and Bini, psychiatrists in England, the Netherlands, Germany and Switzerland adopted the new method. In the winter of 1939-1940, Androp, Lyman and Lowenbach introduced this treatment at the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital in Baltimore. Soon reports appeared from many American sources.

Apparatus and Technique

The apparatus used to produce "electro-convulsions" is rather simple. The principle is that a transformer allows the city voltage to be varied between 0 and 140 volts. A time relay automatically closes and opens the circuit in which the patient is enclosed and exposes him to the flow of current for a time ranging from .1 to .5 seconds, according to choice and necessity. There are now several apparatus on the market. The instrument constructed and in use at Duke Hospital follows the principles first published by Spiegel[4].

The strength of the current flowing through the patient's head during the time of exposure varies according to circumstances. We are dealing with alternating current and with a biologic electrolytic conductor. The ordinary laws of electrolytic conduction do not apply[8]. It must suffice here to say that the effective current usually lies between 500 and 700 milliamperes, provided the initial impedance—that is, the electric resistance to alternating current—is less than 2,000 ohms. If the initial resistance is considerably higher than 2,000 ohms, the "shock current" may become very small and ineffective. On the other hand, currents up to 1,500 milliamperes have been used without untoward results. The electrodes, 5 cm. in diameter, are pressed against both temples. Electrode jelly is rubbed into the skin prior to the application of the electrodes in order to reduce the skin resistance to at least 2,000 ohms.

Treatments are usually given in the morning. Sometimes it has been found useful to treat a patient just before bedtime so that the post-convulsive relaxation may merge with the normal sleep. Before the treatment the patient is asked to empty his bladder and, if possible, his bowels. We prefer not to give treatments directly after a large meal, but in an emergency this circumstance would not preclude a treatment. The patient lies on a hard mattress with a pillow under the small of the back, to produce a slight opisthotonus. An effort is made to give just enough electric stimulation to produce a major convulsion. We therefore begin with 120 volts for .1 second, and change time or voltage according to results. There are no accurate data at present by which to predict the necessary voltage and time. It seems, however, that older patients generally need a larger stimulus than younger persons.

The Convulsion

Immediately with the closing of the circuit the patient loses consciousness. The convulsion which follows an effective electric stimulus greatly resembles an "epileptic" seizure. It begins with a deep inspiration, followed by an expiration through a spastic glottis. Usually the mouth opens wide. We prefer not to insert a mouth gag before the treatment, because many patients feel frightened by this. The gag is inserted when the mouth opens. In our practice, a piece of rubber tubing in the shape of a "V" is placed between the molars, preventing the tongue from being caught between the front teeth and also preventing injury to the front teeth.

The tonic phase is characterized by a rigid extension of the trunk while the arms are bent from the elbow, and the hands and feet assume a characteristic position of flexion and supination. At times, the tonic extension is preceded by a flexion of the body in which the head is raised from the horizontal and the knees are abducted and flexed upon the

6. Krasnogorski, N. I.: Convulsions Called Forth in the Dog by Conditioned Reflex Stimulation and the Resulting Psychoneurotic State of the Animal, Proc. XVth Internat. Physiol. Congr. 1935:239.
7. Berkwitz, N. J.: Faradic Shock Treatment of the "Functional" Psychoses, Journal-Lancet 59:351-355 (August) 1939.
8. Lowenbach, H. and Morgan, J. E.: The Human Skin as a Conductor of 60 Cycle Alternating Current of High Intensity, Studied on Electro-Shock Patients, J. Lab. & Clin. Med., in press.

abdomen, in a manner resembling a swimmer on his back. After about twenty seconds the clonic phase begins, with the familiar rhythmic "convulsive" jerkings. It lasts for another twenty to thirty seconds, during which the clonic movements gradually become less and less frequent. The whole convulsive reaction has a duration of forty to fifty seconds[9].

A "sub-convulsive" or "minor" reaction can be produced with a stimulus just below the one necessary to provoke a generalized convulsion. It consists of an immediate tonic reaction only, and the patient regains consciousness, at least partially, within fifteen seconds.

A generalized convulsion leaves a human being in a state in which all that is called the personality has been extinguished. Although the autonomous functions are operating more or less regularly, the individual does not react for a while to any kind of stimulus and the activity of the cerebral cortex as revealed by the electroencephalogram has almost completely ceased. This period is succeeded by a phase during which the higher functions return and in which the personality is reintegrated. The sub-convulsive reaction does not seem to differ from the convulsive except in degree, but in these minor reactions where the brain has not been completely exhausted, reintegration may begin at any level and the recovery may be much more quickly and indeed sometimes imperceptibly achieved[10].

Selection of Patients

Convulsive treatment was originally intended for patients suffering from schizophrenia. But it was soon found that not all the types of this disease responded equally well, and it became evident that the affective psychoses offered an even better field for success. It would lead too far afield to discuss here percentages and "exact" figures which are published from time to time. It has to be kept in mind that schizophrenia, for example, encompasses a number of mental disorders of perhaps widely separated etiology. It has to be realized that, especially in the initial stages of a mental disturbance, it is often difficult to attach a definite diagnostic label and that psychiatrists, even those trained in the same "school", may disagree about the ultimate diagnosis in terms of the standard nomenclature.

It is possible, however, to extract from the literature a trend of the impressions which, in the absence of "exact" figures, seems to point in certain directions. The following tabulation attempts to summarize this trend as it is consistent with our own observations.

Some Factors Influencing the Prognosis of Electric Shock Treatment:

Relatively Favorable	Relatively Unfavorable
Diagnosis:	
Involutional depression	Paranoid schizophrenia
Reactive depression	Paranoia
Depression in manic-depressive psychosis	Excitement in manic-depressive psychosis
Agitated depression	
Catatonic schizophrenia	Simple schizophrenia
Age at onset of psychosis:	
Above 35 years	Below 35 years
Duration of psychosis:	
Less than 6 months	More than 2 years
Up to 2 years (?)	
Type of Onset:	
Rapid	Insidious
Exogenic Precipitating Factors:	
Present	Absent
Bodily Type:	
Pyknic	Leptosomatic
Temperament:	
Extrovert	Introvert
Prepsychotic Personality:	
Stable, efficient, friendly	Unstable, suspicious, obsessive, "worrier"
Sexual Maladjustment:	
Absent	Present
Mental Deterioration:	
Absent	Present

In our practice, however, electric shock treatment is often administered when the above factors add up to an unfavorable prognosis. We feel, that, in the absence of definite criteria, we are not permitted to withhold opportunities from a patient on the ground of "impressions". This policy has frequently been rewarded by at least a partial recovery which allowed the patient to return to society and prevented permanent commitment to a state institution.

Only when severe deterioration of habits and intellectual function has been present for

9. It is interesting to note that the duration of the convulsive reaction is the same in animals like dogs, cats, rabbits, and rats, as it is in men and women. It seems to be a biological constant.

10. Lowenbach, H. and Stainbrook, E. J.: Observations on Mental Patients After Electro-Shock, Am. J. Psychiat. 98: 828-833 (May) 1942.

a long time do we feel justified in advising with conviction against convulsive treatment or refusing it if our advice is disregarded. Under those circumstances an attempt to improve the condition of the patient or to arrest the progress of his psychosis still should be made in the state hospital. This places no additional financial burden upon the family of the patient.

As non-psychiatric contraindications we regard myocardial damage with changes of the electrocardiogram, aneurysm of the aorta or of the cerebral vessels (previous cerebral vascular accidents), a systolic pressure above 200 (an arbitrary level), active tuberculosis, acute infections, and thrombosis or thrombophlebitis. We have treated without need of regret patients between the ages of 16 and 68, with blood pressures up to 200 and with weights up to 240 pounds. Successful treatments of women during pregnancy have been reported, with subsequent uncomplicated delivery of a healthy baby at term[11].

Malformation of the spine, severe arthritis, and osteoporosis precluded convulsive treatment until curare and drugs with similar action became available to prevent the full mechanical severity of the convulsive seizure. Since then, patients with spina bifida, previous vertebral fractures, and similar conditions can be subjected to the treatment[12].

The "Typical" Course of Treatment

A course of treatment consists of twelve to twenty electric shocks given two or three times per week. In our experience, improvement usually becomes apparent after the eighth treatment. We have seen it happen again and again that the first seven treatments produce no change in the patient's symptoms, but that after the eighth treatment, there is a decided turn for the better. We have no explanation to offer for this phenomenon. If a patient does not show signs of improvement after the eighth treatment, the chances are that he will not improve at all. From then on, the patient may recover rapidly and lose the delusions and other symptoms in the course of the next four treatments, or progress may be slow and more than twelve treatments may be needed. It has been suggested that treatment be stopped as soon as the main symptoms have disappeared, and that if necessary later on, one or two "sustaining" treatments be given. We do not approve of this procedure. Too often we have seen serious relapses occur after a short time of improvement when the patient was given less than twelve treatments. When treatment was started again, many more shocks were necessary to produce successful results.

Ambulatory treatment is possible[13], and we have used it when circumstances are especially favorable.

The "Confusional" Treatment

Each convulsive treatment is followed by a period of disorientation and mental confusion which gradually clears during the time of recovery from the "shock". When the next treatment is given two or three days later, the patient has regained his memory and it is only the convulsion and a period afterwards which is covered by total or partial amnesia. We gained the impression that those patients whose post-convulsive confusion lasted for a considerable time improved faster and with greater certainty than did those who became confused for a short time only. We also observed that patients who did not show any confusion at all and were able, a short while after the treatment, to recall name, date, and events, usually resumed immediately their delusions and subsequently remained unimproved. This impression was further strengthened by a remark of Myerson that he had to treat a patient until a state of amentia was reached before improvement became apparent[13].

Two years ago, therefore, we began to give what, for lack of a better name, we call the "confusional" treatment[14]. In this type of therapy the explicit purpose is to create a period of confusion lasting for many days. Twelve treatments given within twelve to thirteen days usually suffice. Definite confusion becomes manifest during the treatment, most markedly again after the eighth shock. Name, occupation, domicile, marital and domestic status, recent and remote circum-

11. Thorpe, F. T.: Shock Treatment in Psychosis Complicating Pregnancy. Brit. M. J. 2:281-287 (Sept.) 1942.
12. Bennett, A. E.: Preventing Traumatic Complications in Convulsive Shock Therapy by Curare. J.A.M.A. 114:322-324 (Jan. 27) 1940.
13. Myerson, A.: The out-patient electric shock treatment manic depressive psychosis. Read before the Amer Psychiat. Assoc., Richmond, Va., 1941.
14. Dr. John F. Owen, Superintendent of the N. State Hospital, Dix Hill, Raleigh, collaborate extensively in this work.

stances of importance are completely forgotten by the patient during this time. Instead the patient is apathetic, "inert", shows no initiative, and has to be urged and coached to perform the simple tasks of personal hygiene, eating and elimination. The patient may sit for a long time in front of a meal, if left alone; but if urged to eat, he will do so, masticate well, and swallow. He has to be brought to the toilet, where he will urinate and defecate by himself, if constantly told to do so; if left alone, he may sit on the toilet for a long time without progress but also without discomfort. Thus the patient exhibits a type of behavior closely resembling that observed by Freeman and Watts[15] for some days after prefrontal lobotomy. In the majority of our cases gross neurological signs were absent during this treatment except for a fine tremor of the hands and lips. In a few patients neurologic signs (beginning aphasia, staggering gait, and excessive tremor) developed before mental confusion was definitely apparent. The treatment was interrupted immediately and the signs disappeared. None of these patients improved. Usually, however, mental confusion appears far ahead of neurologic symptoms[16]. When the confusion is complete, treatment is stopped. In the ensuing two weeks spontaneous activity and memory return. In the successfully treated cases, the symptoms of the psychosis which led to the treatment do not return with it.

Accidents and Their Prevention: Pathological Anatomy

Considerable pull and pressure are exerted on the bones and ligaments of the skeleton during a convulsion[17]. The spinal column in particular is placed under severe strain. Compression fractures of the vertebrae—notably of the fifth, sixth, and seventh thoracic vertebrae—, fractures of the humerus and the femur, dislocation of the shoulder joints, and tears in ligaments have been described in reports from numerous sources[18].

Fortunately electro-convulsions are less severe than those following injection of metrazol. Another advantage of the former agent is the fact that patients lose consciousness immediately when the "shock" is given. With metrazol many seconds are required before the concentration of the drug reaches the convulsive threshold. During this period, which he later may remember, the patient usually experiences severe anxiety and feelings of impending disaster. When the convulsion finally sets in, it begins in a body whose muscles are tense and whose joints are fixed. In contrast, the patient receiving electric shock experiences no anxiety and the convulsion begins in a relaxed body.

To forestall mechanical injuries, various measures, some of them rather complicated, have been advocated. It would exceed the scope of this short review to discuss in detail their advantages and disadvantages. We feel that most restraining procedures are unnecessary, if not directly harmful. It seems to us that it is better to allow the muscles and joints of the body to behave according to their own inherent mechanics than to add further strain through outside influences. The following precautions we have found to be valuable and sufficient:

When the indication for shock treatment has been established, an x-ray is made of the patient's spine. Should the roentgenogram reveal abnormalities such as malformation, more than moderate arthritis, or osteoporosis, the "shocks" are either carefully restricted to sub-convulsive reactions or the development of the convulsion is avoided altogether by the injection of curare[19]. In the absence of abnormal findings, the treatments are given in the manner already described. In our experience, the hyperextension of the back satisfactorily prevents excessive "jack-knifing" which may lead to compression fracture of the vertebrae. Enough experienced help is present to make sure that the patient does not harm himself during the time of the post-convulsive restlessness.

Post-convulsive asphyxia which required immediate intervention with artificial respiration and stimulants has been reported by

15. Freeman, W. and Watts, J. W.: Psychosurgery, Springfield and Baltimore, C. C. Thomas, 1942.

16. The process of bringing on confusion can be considerably speeded up by giving the patient four convulsions daily for three to four days, spaced three hours apart with twelve hours of rest in bed. Our experience is still too small to derive any conclusions from this form of treatment.

17. Charon, X.: Des fractures spontanees pendant les acces epileptiques. Ann. medicopsychol., 1899; quoted from Rev. neurologique 7:609 (1899).

18. Worthing, H. J. and Kalinowsky, L.: The Question of Vertebral Fractures in Convulsive Therapy and in Epilepsy. Am. J. Psychiat. 98:533-537 (Jan.) 1942.

19. We use, with full satisfaction, "Intocostrin," manufactured by E. R. Squibb & Sons.

Brill and Kalinowsky[20]. Fortunately, we have never encountered difficulties of this sort. Changes of the electrocardiogram following treatment have been described, but they were transitory in character.

Very little is known about anatomical alterations due to electric shock treatment. Of the twelve deaths reported in the American literature, some occurred several months after the last treatment and in persons of well advanced age. It remained a question whether or not the treatment had acted as a contributing factor. The other fatalities were caused by respiratory failure which developed immediately after an induced seizure. In those cases where permission for autopsy was obtained, fresh hemorrhages, perivascular damage, areas of recent necrosis in the cortex, in the hippocampus and in the medulla, and astrocytic proliferation were discovered and attributed to the passage of current through the brain[21].

Animal experiments, on the other hand, have demonstrated that lasting damage can be produced only with currents fifty to two hundred times above the convulsive threshold. The harmful effects consist of capillary and supra-capillary anemia with hemorrhages in the cerebral tissues. No significant and consistent pathologic changes are caused by shock doses comparable to those used in human treatment[22].

Electroencephalographic studies in animals and human beings revealed, however, that the cerebral electro-activity becomes irregular and finally abnormal during the course of treatment[23]. In some cases the pattern remains altered for a long time after treatment ends; in others it returns to its original form within a short period after the last "shock". This indicates physico-chemical changes which might escape histological detection. More systematic studies are required and are in progress.

20. Brill, H. and Kalinowsky, L.: Asphyxial Episodes and their Prevention in Electric and Other Convulsive Therapies, Psychiat. Quart. 16:351-356 (April) 1942.
21. (a) Alpers, B. J. and Hughes, J.: The Brain Changes in Electrically Induced Convulsions in the Human, J. Neuropath. & Exper. Neurol. 1:173-180 (April) 1942.
    (b) Ebaugh, F. G., Barnacle, C. H., and Neubuerger, K. T.: Fatalities Following Electric Convulsive Therapy, Arch. Neurol. & Psychiat. 49:107-117 (Jan.) 1943.
22. (a) Neubuerger, K. T., Whitehead, R. W., Rutledge, E. K. and Ebaugh, F. G.: Pathologic Changes in the Brains of Dogs Given Repeated Electrical Shocks, Am. J. M. Sc. 204:381-387 (Sept.) 1942.
    (b) Alexander, L. and Lowenbach, H.: Experimental Studies on Electro Shock Treatment. With discussion by Drs. L. Kalinowsky, M. T. Moore and N. W. Winkelman, J. Neuropath. 1:444-446, (Oct.) 1942.
23. (a) Golla, F., Walter, W. G. and Fleming, G.W.T.H.: Electrically Induced Convulsions, Proc. Roy. Soc. Med. 33:261-267 (1940).
    (b) Lowenbach, H. and Lyman, R. S.: The Electroencephalogram in Electrically Induced Convulsions in Rabbits, J. Neurol. & Psychiat. 3:336-342 (Oct.) 1940.
    (c) Hughes, J., Wigton, R. and Jardon, F.: Electroencephalographic Studies on Patients Receiving Electric Shock Treatment, Arch. Neurol. & Psychiat. 46: 748-750, 1941.
    (d) Pacella, B. L., Barrera, S. E. and Kalinowsky, L.: Variations in the Electroencephalogram Associated With Electric Shock Therapy of Patients With Mental Disorders, Arch. Neurol. & Psychiat. 47:367-384 (March) 1942.

Summary

Electric shock treatment, in its typical and "confusional" forms, is a method of treating human beings ill with schizophrenia, paranoia, depressions and excitements of different categories, and anxiety states by convulsions electrically induced. If properly administered, it has few immediate dangers. It is convenient to the patient, who feels nothing of the treatment and has a complete amnesia for each convulsion and for some time before and afterward. It is easy for the physician to give. The cost of each treatment is a fraction of one cent, a point of importance for the budget of state hospitals and other public institutions.

Electric shock treatment, like other previous forms of convulsive therapy, is empirical, and the mode of action is as unknown as is the cause of the disease treated. In the vernacular, "we treat something we do not know what it is, with something we do not know what it does." Our justification is the great number of patients restored to health and happiness, who formerly were relieved either after a long period of helpless waiting, or not at all.

Too Much Medicine.—When things are not going well in the face of much drug or other therapy, try a rest day or two or three without any medicines at all (except in the case of essential rations like insulin)—every now and then the result is little short of miraculous in arousing a spark of life, of appetite, or of morale which had been dampened by the very drugs which perhaps at first or on occasion may actually be life saving. Life saving measures may prove too heroic for every day life and may eventually result in severe depression or worse.—Paul D. White: Fallacies in the Treatment of Heart Disease, New Orleans M. and Surg. J. 93:566 (May) 1941.

New Remedies in the Treatment of Coronary Disease.—Do not rush to try every new remedy suggested in the treatment of coronary disease with insufficiency . . . The old standbys of rest and the nitrites are still the best, although in a few instances aminophyllin and nerve injections do seem to help. Radical measures like total thyroidectomy and implantation of new blood supply have not proved their worth, nor has radiation of the adrenal glands. —Paul D. White: Fallacies in the Treatment of Heart Disease, New Orleans M. and Surg. J. 93: 569 (May) 1941.

DIABETES MELLITUS, WITH SPECIAL REFERENCE TO COMPLICATIONS INVOLVING THE FEET

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There are many methods of treatment of diabetes now in use in this country. Each has its active proponents. These differ in the kinds of insulin used and in the widely varying dietary procedures employed. In the matter of insulin there is the original standard, readily absorbable, rapidly acting material and the more recent protamine suspension which is slowly absorbed and more prolonged in action.

On the subject of diet there are several widely differing schools of thought. Some advocate greatly restricted carbohydrate intake and low calories; some, low carbohydrate and high fat; some, high carbohydrate and low fat; and others, totally unrestricted diets. In addition, there are many variations and combinations of insulin therapy. Soon after the institution of insulin as a remedial procedure it was observed that it makes little immediate or noticeable difference to the patient what kind of diet he follows. In short, with an adequate dose of insulin the patient can live with reasonable freedom from symptoms no matter how radical a diet is used. It should be remembered, however, that the human body can adjust itself to all sorts of dietary extremes, as is evidenced by the eating habits of tribes and races of people throughout the world. On the basis of experimental study it is believed that not less than thirty-eight chemical principles are essential in the human diet. These include the vitamins, the amino acids, certain fatty acids, glucose and mineral salts. Deprivation of many of these does not necessarily lead to rapid death or even to loss of function; indeed, these food principles vary extensively in their value to the human economy. However, the least significant of them has a purpose, so that it may be said that a definite deficiency is ultimately registered in the body of the individual whose diet is inadequate. From these observations it may be concluded that while man may be sustained for a considerable length of time on deficient diets, the optimum or most efficient will be the one which is best balanced with reference to his essential needs. The diabetic may and frequently does suffer from both insulin and food deficiency. It follows, therefore, that the diet best suited for the patient is the one which is calculated with reference to his essential needs, both in kind and in amount. The factors to be considered in planning such a diet are age, sex, height, weight, body surface area, and occupation. There are other factors of minor significance such as race, religion, and complicating diseases. The diet should have a constant value, varied only under exceptional circumstances. The degree of the patient's inability to utilize such a diet in terms of urine sugar would roughly represent a measure of insulin deficiency. For the sake of brevity, the details of the technique of determining these values are omitted in this paper.

The prolongation of the lives of diabetic patients by insulin therapy has created many new and interesting clinical problems. For reasons not yet clearly understood arteriosclerosis is a frequent accompaniment of diabetes. This degenerative vascular process may be either general or localized. When it involves the kidneys, heart, or brain it usually presents a clinical condition of the conventional type which may be of short duration, non-disabling, and of fatal termination. But when it involves the lower extremities, as is frequently the case, it may be of long duration, painful, and extremely disabling, culminating in the tragedies of gangrene and leg amputation. Of all the complications of diabetes this is by far the worst. Its occurrence is constantly increasing. Any measures which will curb or limit its degree of destruction deserve thoughtful attention. In a case of diabetes in which there is associated peripheral vascular disease leading to ulcer and gangrene of the feet, the following is the usual sequence of events:

The constriction or partial occlusion of nutrient arteries and arterioles leads to an impairment in the nutrition of the foot muscles. This in turn causes the arches of the feet to collapse, with faulty distribution of body weight on the soles of the feet and toes. At the points of excessive and unusual weight bearing, thick callouses form. The skin on the feet of the diabetic patient with peripheral vascular disease is usually atrophic, scaly and inelastic. Its ability to withstand trauma or friction is greatly reduced.

Address delivered before the Forsyth County Medical Society, Winston-Salem, October 13, 1942.

Callouses are the usual reaction. These in time pinch off the blood supply to the subcutaneous tissues, causing small extravasations of blood which appear as black and blue areas and, if rapid in formation, as blisters. An area of injured blood vessels is likely to enlarge quickly and deepen as the process continues. Next will be observed a sterile ulcer of small size, containing a serosanguineous fluid. If the ulcer is on the toes and near the nail edges, it may become infected. When the bed or matrix is poorly supplied with blood, the growth tends to contract, the nail curves downward and inward, in some cases almost forming a circle. Where only the lateral margins are involved, the familiar ingrowing nail results. Callouses on the ball of the foot or heel may crack or be injured, thus making possible the entrance of organisms from the surface. Infection is followed by edema and further blocking of the circulation. When a terminal arteriole or artery is cut off, necrosis results. In the case of the toes, if the superficial vessels are obstructed, gangrene of the skin alone will result. Such a condition, if promptly and properly treated, is curable without sacrifice of the part. If it is neglected, however, and the vessels supplying the muscles and deeper structures become involved, death of the occluded part rapidly follows. This can be relieved only by amputation or excision. Disturbances of circulation and ulcers on the feet of diabetics cannot be treated by casual methods or with indifference. In the non-diabetic person, sores usually heal of themselves with or without a doctor's care. This is not true, unfortunately, in the diabetic patient. Unless prompt and appropriate treatment is instituted, gangrene is certain to follow. The degree of involvement and destruction determines the scope of surgical treatment. Until recently a gangrenous toe usually meant a mid-thigh amputation. In our service we have developed and made use of certain techniques of treatment which have greatly lessened the necessity for radical surgery. The various steps pursued are tabulated as follows:

1. Make sure of the best possible general nutrition by correcting the diabetic state, and by giving a balanced diet, with vitamins and insulin.
2. Elevate and maintain the diseased limb so that it will be on the same level as the heart.
3. With a sharp scalpel remove callouses and corns. Dissect out thoroughly all necrotic tissue.
4. Use sterile dry dressings, if the wounds are clean; special antiseptic dressing if infected.
5. Avoid hot water bottles, electric pads and diathermy.
6. Keep limbs warm by means of woolen blankets. Avoid steel cages. Use simple foot board[1] instead (fig. 1 and 2).
7. Enforce hygiene of the skin, and employ gentle massage of the limb, keeping away from diseased area.

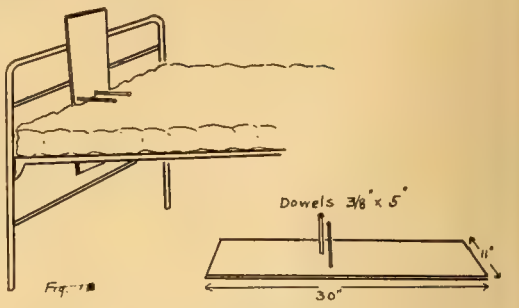


Fig. 1. Foot board used in place of the steel cradle to keep the bed clothes from pressing on the foot.

Since the limits of this paper do not permit discussion of the regulation of the diabetic state, attention will be directed solely to clarifying the suggestions regarding the care of the foot lesions. The elevation of the foot to the heart level is absolutely essential. When an ulcer appears on the foot of the diabetic, it invariably means obstructed circulation. Healing of an ulcer will rarely take place unless the limb is elevated. Ointments, surgical dressings, and vacuum and pressure

1. The foot board shown in figure 1 is made of five-ply plywood, a half inch thick. Its dimensions and constructions and method of use are revealed by the drawing (fig. 2). It has many advantages over the steel cradle, chief of which are:
   1. The foot and leg of the patient are kept warmer and more comfortable.
   2. It is easier to get at the foot for dressings and treatment.
   3. Electric light bulbs and hot water bottles are not needed; these are a hazard and should not be used.
   4. Female patients are not exposed during dressings and treatments as is the case when the cradle is used.
   5. It is easier for the patient to sit up in bed, eat his meals, and perform many personal tasks with which the cradle interferes.
   6. The boards are inexpensive, and can be made anywhere by anyone. The use of valuable steel is avoided.



Fig. 2. Hospital bed equipped with foot board and prepared with small pillows for use.

devices for improving the circulation are not even to the slightest degree a substitute for elevating the part. The majority of foot ulcers will heal of themselves if the lesion is kept clean and dry and the foot elevated.

The correct degree of elevation of the limb during the healing process is important. It depends entirely upon the patency of the circulation in the affected limb and is readily determined by a simple test. With the patient in both horizontal and sitting positions, the leg is elevated to that point where the redness of the foot or congestion disappears. It may range from an angle of plus 45 degrees in a severe case to one of minus 45 degrees or more in a mild obstruction. The position of the body and the angle at which the circulation appears to be normal may be called the healing angle, and it is in this position that the leg and foot should be maintained if good results are to be achieved. All other treatment is secondary. The destroyed or devitalized tissue must be completely removed and the resulting wound kept clean. When only the skin is involved this surgical procedure may be done in the home or the office. When the deep structures and muscles and bones are involved, the case becomes a hospital problem. If the patient has a fever and there are evidences of extension of the infection, such as increasing redness of the skin away from the lesion, red streaks along the veins and lymphatics, and positive blood cultures, the oral use of one of the sulfonamide drugs is advised. The prompt use of chemotherapy will frequently obviate the necessity for drastic surgery and high amputation, and goes far toward promoting a successful outcome. The necessity for thorough and frequent debridement of even superficial lesions should be stressed. A foot wound which does not readily heal under this technique is probably harboring diseased bone.

After the lesion has healed, the patient still has partially occluded peripheral blood vessels and a substandard nutrition in his legs and feet. He must thereafter adjust his life to a measure of physical activity compatible with the endurance of his legs. This means he must have regular rest periods during the day, with feet elevated, and shoes designed with inner soles so padded as to avoid areas of excessive pressure and friction. The feet should be kept scrupulously clean and massaged daily, using preferably a vaseline preparation. Camphor ice vaseline is a satisfactory lubricant. Buerger exercises are helpful in improving the circulation. The toe nails should receive special care, using heavy clippers for the purpose; knives and scissors are not satisfactory. The reappearance of callouses and ulcers means that these measures are not being carried out or that the patient is using his legs beyond the maintenance capacity of his circulation.

The plan of treatment herein roughly outlined has been used in my service for more than five years. Of late we have made freer use of the sulfonamides and have practiced debridement with greater thoroughness.



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

Prior to the institution of this plan, we performed from five to ten high amputations per year. During the past three years under this method we have been able to obviate high amputations. In this period, we have studied and successfully treated many cases. Photographs of the foot lesions in three of them are shown here. The original pictures were Kodachrome transparencies, the color values of which are slightly exaggerated in the high lights and shadow of black and white prints. The lesions look slightly worse than they really were; likewise the effects of debridement and healing do not show the full measure of improvement. The foot lesions on these 3 patients are completely healed and have remained well for more than a year.

The major surgical procedures in this work have been done by my colleague and collaborator, Dr. Walter A. Calihan.

Case Reports

Case I. This patient was a male veterinarian, aged 54 years, with diabetes of twelve years' duration. He had had three attacks of frost bite involving the feet, the most recent one preceding the appearance of blisters on both feet. Figure 3 shows the area of skin gangrene at the time of hospital admission. Figure 4 shows the same foot six weeks later, nearly healed. These lesions after two and one-half years are completely healed. Treatment consisted in elevation of the limb, debridement of necrotic tissue every two to four days, and dry dressing with the occasional use of sulfanilamide powder on infected areas.

Figure 5 shows lesions resulting from the careless and unauthorized use of a hot water bottle by this same patient.

Case II. This patient was an obese female, aged 50 years, with diabetes of twelve years' duration and of moderate severity. She had small areas of skin gangrene and perforating ulcers on both feet, some of them of several months' standing. Figures 6 and 7 show the appearance of the lesions on admission to the hospital. Figures 8 and 9 show the appearance of the feet after two weeks of elevation and frequent debridement. These lesions were completely healed after approximately six weeks' treatment and have remained well for two years.



Fig. 8



Fig. 9



Fig. 10



Fig. 11

Case III. This Italian woman, aged 71 years, had had diabetes for fourteen years. Vascular lesions appeared on the left foot in January, 1941. The early lesions healed, but the patient was uncooperative and osteomyelitis of the metatarsals followed, necessitating removal of the third and fourth toes. Sulfathiazole was given internally and locally, the limb was elevated, and frequent debridement of necrotic tissue was done. The foot has remained healed for two years. Lesions of this severity heretofore have necessitated high amputation.

Figure 10 shows the condition of the foot after the patient had lost the fourth toe. The third toe is gangrenous and infected, inflammation extending up the dorsum of the foot. Figure 11 shows the foot two weeks later, after the third toe and metatarsal bone had been removed.

Summary and Conclusions

The lesions of the feet which occur in middle-aged and elderly diabetic patients are the result of an impaired circulation in the legs, with a train of symptoms and signs of lowered nutrition—callouses, ulcer and gangrene. By prompt and efficient treatment, which consists mainly of restoring the adequacy of the circulation and removing devitalized tissues, healing can be achieved. Thereafter the health of the foot depends upon the care which it receives, with due reference to the capacity of the circulation to nourish the impoverished part.

The Danger of Neglecting the Toes in Diabetic Patients.—I do not dare to look up how much of the free-bed money for diabetic patients in the New England Deaconess Hospital is spent on neglected toes, but I venture to say that the charity money devoted to the toes of elderly diabetic patients is five times that expended on diabetic patients in their teens. — Elliott P. Joslin: Diabetic Hazards, New England J. Med. 224:592 (April 3) 1941.

ILEO-VAGINAL FISTULA

A Case Report

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RUTHERFORDTON

In an experience of more than 2000 consecutive cases treated in our Clinic with intra-uterine radium, the complication I am reporting is the first of its kind we have encountered. A number of problems involving general surgery as well as gynecological surgery appeared, and for this reason I bring it to your attention. The case aroused great interest with us, and I hope will prove of interest to you.

The patient was a frail married woman, aged 54, a multipara, weighing about 100 pounds. She first noticed a rather foul discharge from her vagina in February, 1940. The following month she had irregular bleeding, which continued for six weeks. At this time she consulted her family physician, who made a diagnosis of carcinoma of the cervix and referred the patient to us in May, 1940. She was admitted to the Rutherford Hospital on May 9, 1940, and discharged on May 18, 1940.

Upon vaginal examination, a new growth was found, involving both lips of the cervix (fig. 1). On the posterior lip the growth extended to the posterior vaginal wall. The cervix was small. The tissue bled freely at examination. The uterus was not enlarged; it was freely movable, and no pathologic lesion was palpable in the adnexal region.

A biopsy of the cervical growth was performed, and the pathological report by Duke University was "squamous cell carcinoma of the cervix".

Read before the Section on Surgery, Medical Society of the State of North Carolina, Charlotte, May 12, 1942.

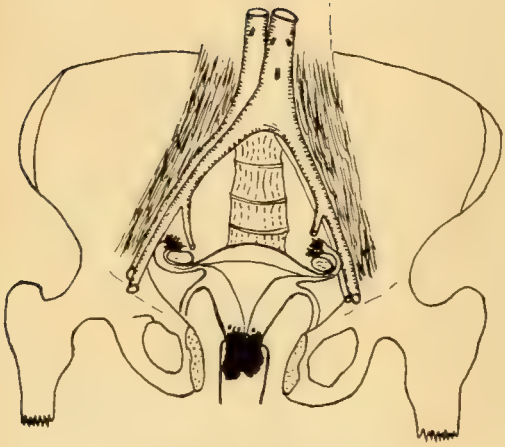


Fig. 1. The shaded area shows malignant involvement of the cervix uteri.

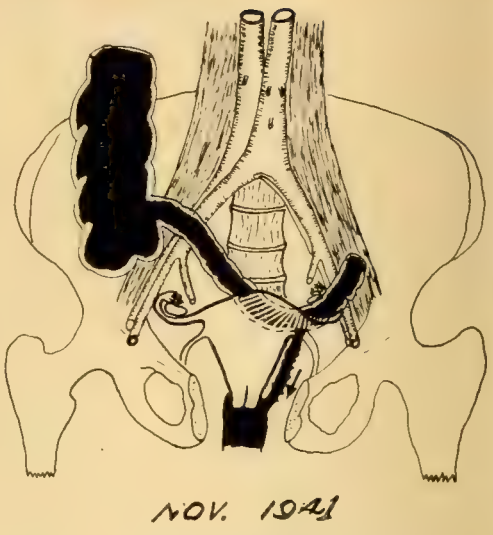


Fig. 2. The shaded area shows the ileo-vaginal fistula tract.

The patient received a large dose of radium within the uterus and against the face of the cervix. The bladder and rectum were protected by a lead cone and sterile gauze packing. External irradiation about the pelvic girdle was given several days later. Her convalescence was uneventful. Upon her discharge on May 18, 1940, she was advised to come back at the end of six weeks for a check-up examination. On July 3, 1940, she returned. Vaginal examination revealed satisfactory progress. There had been pain but no bleeding. A small area of necrosis was seen in the cervical os. The patient was allowed to return home but was told to report every six weeks for examination.

On August 16, 1940, the patient appeared, complaining of pain in her lower abdomen and a profuse discharge from her vagina. The cervix looked smooth and no evidence of cancer was found, but to the left of the posterior lip there was a small opening which was thought to be a recto-vaginal fistula. No mass was palpable through the vagina or rectum. She decided to go back to her home, and there had a stormy time, with a great deal of pain and a profuse discharge from the fistula.

Five months later, on January 15, 1941, she felt greatly improved and came to the hospital for re-examination. At this time there was no discharge from the vagina. The cervix was smooth, and looked fairly normal. The supposed recto-vaginal fistula had closed itself completely. It seemed that an excellent result had been obtained, inasmuch as no further evidence of malignancy was found. The patient went home in a happy frame of mind and was gaining in weight and strength.

Her satisfactory progress continued for a time, and then the fistula opened itself and the profuse discharge reappeared. She did not return to the hospital until September 29, 1941—eight and one-half months after the last examination. She stated that she had been confined to bed for four weeks, that she felt very weak, and had suffered much pain in her abdomen, especially after eating. She continued to have a profuse, thin, watery discharge from the vagina. There had been a marked loss in weight. Upon vaginal examination, the cervix was smooth and looked normal. The uterus was not enlarged and no mass was palpable. To the left of the cervix was an opening which was about the size of an ordinary lead pencil. A profuse, thin, watery discharge came from the opening. No mass was palpable in the rectum. The patient's general condition was bad; her hemoglobin was 60 per cent. The soft parts about the vagina and perineum were fiery red and painful. She was re-admitted to the hospital in the hope that her condition might be improved so that an operative procedure could be undertaken. The marked loss of



Fig. 3. A section of the resected terminal ileum. There is no evidence of malignancy.



Fig. 4. A section showing the uterine tissue with malignancy.

weight and thin, watery discharge suggested a fistula from the small bowel. Barium enemas showed that the rectum and descending colon were not involved (fig. 2).

Several blood transfusions were given along with other supportive treatment, and her condition improved. The hemoglobin rose to 75 per cent and on November 1, 1941, the patient was operated on. A midline incision was made, and upon inspection of the rectum and sigmoid no malignancy was found. The uterus was small. In the region of the left cornua a loop of terminal ileum about 18 cm. from the cecum was fused tightly. Down the folds of the left broad ligament the fistulous tract found its way to the vagina. The loop of ileum was carefully removed from the uterus and an opening about the size of a five-cent piece was found in the ileum. There was no evidence of malignancy in the loop of ileum, nor was any enlarged gland found anywhere. Several inches of the ileum were resected and a lateral anastomosis was performed. The fistulous tract was then visualized in the left broad ligament, hugging the left side of the small uterus. The uterus itself was dull grey in color and quite friable; the blood supply was very poor. A subtotal hysterectomy, rather than a pan-hysterectomy, was performed, on account of the old cervical lesion. There was practically no bleeding, and the uterine tissue was almost necrotic. The edges of the opening into the vagina were freshened and a Penrose drain was inserted into the pelvis and the lower end was drawn out through the vaginal tract. The patient's convalescence was uneventful, save for the fact that an abscess developed in the incision and discharged freely. However, the incision finally healed with no incisional hernia. Her bowels moved normally and the opening in the vagina healed readily after removal of the Penrose drain. She gained in weight and strength and returned to her home on November 26, 1941.

The tissue removed was sent to Duke University for pathological examination. The loop of ileum did not reveal any malignancy (fig. 3), but the uterus showed a squamous cell carcinoma, invasive in type. Throughout the uterine stroma, small or moderate sized groups of squamous cells were seen, pretty well circumscribed (fig. 4).



Fig. 5. A section of the corpus uteri showing the malignancy attenuated.

Different sections showed long strands of epithelial cells of the squamous type, invading the uterine musculature itself. It was thought that the process represented one of relatively long standing.

We have received several cards from the family of the patient stating that she is getting along very well indeed. The last report said that she had improved so much that unless we heard from her again, we would know that she is doing well. In spite of the fact that the last pathological report revealed strands of squamous cells invasive in type in the corpus of the uterus, the organ looked as if the malignant growth had been checked (fig. 5).

Over a period of twenty years we have used a large amount of radium and have had many hundreds of interesting cases. Since the early days of radium many improvements have been made in its use, and we feel that radium therapy offers the best means of treating carcinoma of the cervix. Good results can often be obtained in carcinoma of the corpus uteri as well.

Abstract of Discussion

Dr. Julian A. Moore (Asheville): In closing the fistula Dr. Crawford adhered to broad surgical principles by resecting the fistulous portion of the ileum. I was rather surprised, however, at his saying that he did not take out the whole uterus because of old carcinoma. I should have thought that it would be safer to take out the whole uterus rather than part of the body of the uterus.

I think Dr. Crawford is to be congratulated, and certainly the patient is, in that the condition was recognized as early as it was and the malignant growth apparently checked.

Dr. R. O. Lyday (Greensboro): Dr. Crawford's presentation of this very interesting case has brought to mind a case which I had some eight or ten years ago. A woman who had a total abdominal hysterectomy some six weeks before was brought into the hospital in an extremely emaciated condition. There was excoriation all about the vaginal area and the thighs. The patient was mentally confused, and markedly dehydrated. The patient was given barium by mouth, and in perhaps half a minute apparently the entire amount came out through the vagina. Upon operation it was found that two loops of jejunum had become attached to the suture line in the vaginal vault. The first one was dissected off without any tearing into the lumen. In the other loop there was a fistulous tract; the jejunum had been caught in this area and formed a fistula which would probably have admitted the thumb. It was not necessary to resect the bowel in this case; it was repaired with adequate lumen, and the patient recovered without any difficulty.

When Dr. Moore was discussing the procedure Dr. Crawford used I was thinking that I would have done the same thing. A panhysterectomy would have been a far more formidable procedure than a simple subtotal hysterectomy.

Dr. Crawford: In answer to Dr. Moore's remark about my not taking out the cervix, I did not want to do any more than I had to for fear of stirring up trouble.

War has not changed the basic strategy of tuberculosis control. The cardinal points are: find the case early—institute rest and isolation immediately—treat with modern methods—rehabilitate. War, however, alters the community approach. Sudden growth of war industries has brought armies of new industrial workers and their families into our midst. These have not yet become part of the community pattern. It is essential that these millions of workers be reached in the Early Diagnosis Campaign Against Tuberculosis. Education of the people, in war as in peace, is the driving power of democracy at work. Kendall Emerson, M.D.

Experience everywhere has shown that the stage of tuberculosis on admission to a sanatorium is the most important single factor in its prognosis, while recognition of tuberculosis before it has reached the infectious stage is the only certain way of checking the spread of the disease within the family group.

No history of exposure to tuberculosis can be obtained in more than one-half of all diagnosed cases. This fact is sufficient indication that any well-balanced program for tuberculosis control must include other comprehensive diagnostic procedures, such as mass examination of specially susceptible groups. From "The Modern Attack on Tuberculosis" by Chadwick and Pope.

POSTOPERATIVE PULMONARY ATELECTASIS

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Postoperative pulmonary atelectasis is a condition that should be of great interest not only to the surgeon, but to every one in the medical profession: to the internist because he is often called into consultation when this complication occurs; to the otorhinolaryngologist because it may happen to his own operative cases and also because he is often asked to examine the upper respiratory passages before elective operations; to the bronchoscopist because he is sometimes called in to treat these cases; to the roentgenologist because he must interpret the x-ray findings; and to the family physician because upon him falls the brunt of most of the explanation to the patient's family when this unfortunate complication occurs.

Definition

Postoperative pulmonary atelectasis has for many years gone under the popular misnomer of "ether pneumonia". Actually, this condition occurs almost as frequently following spinal or local anesthesia as it does after inhalation anesthesia. Furthermore, it is not in reality a pneumonia at all.

The condition is one in which, because of bronchial obstruction, air is absorbed from the alveoli. As a result, complete airlessness of a lobe or a lung (massive collapse), or of a group of lobules (lobular or patchy atelectasis) occurs. It is the most frequent postoperative pulmonary complication, and is often mistaken for pneumonia.

William Pasteur in 1910 recognized and described the clinical picture. He maintained that the condition was at the bottom of most pulmonary disorders following operation. However, only in recent years has the surgical profession recognized that he was right.

Pathology

The process starts with the occlusion of the bronchus or bronchioles by a mucous plug, or plugs. The alveolar air of the involved lung or portions thereof is absorbed within an hour or so, and complete airlessness of the affected portions results. The airless lung is solid and much smaller than normal. The mucus occluding the bronchus or bronchioles usually is grayish green in color, tenacious, purulent, and loaded with pneumococci which are usually type IV. The decrease in the size of the involved lung is compensated for by depression of the ribs, elevation of the diaphragm, displacement of the mediastinal structures to the involved side, and compensatory emphysema of the uninvolved lung tissue.

If the mucous plug is coughed up early or removed by bronchoscope, the lung or portions thereof may immediately re-expand. Usually it takes a day or so for the process to subside, and some cases require several weeks for recovery. In the latter, there is undoubtedly secondary infection or pneumonitis. The serious complications of atelectasis are pneumonia, pulmonary abscess, bronchiectasis, and empyema.

Etiology

As Homans states, the villain of the play is evidently the mucous plug, which occludes the bronchus, causing air to be absorbed from the lobule, lobe, or lobes beyond. However, bronchospasm or bronchomotor and vasomotor disorders may play a part. The formation of the mucous plug is clearly dependent upon two factors—an increase of bronchial secretions, and their retention.

Pre-existing upper respiratory infection, poor oral hygiene, bronchitis, and pulmonary disease are the most important antecedent factors in the increased production of bronchial secretions. Allergy and an irritating anesthetic agent unquestionably play a part, but atelectasis occurs almost as frequently after spinal anesthesia as it does after inhalation anesthesia.

Retention of bronchial secretions is dependent upon three main factors: (1) *A decrease in the cough reflex.* Pain, certain types and sites of incisions, certain types of anesthesia, and the postoperative use of too large doses of opiates all tend to suppress the normal cough reflex. (2) *Decrease of respiratory excursions after operation.* This factor is undoubtedly influenced by any anesthetic, no matter what type is used, except in local anesthesia. Inhalation, intravenous, and rectal anesthesia can all have a depressant action on the respiratory center. Spinal

Read before the Seaboard Medical Association, Wilson, North Carolina, December 3, 1942.

anesthesia causes paralysis of the abdominal and lower intercostal muscles and thereby interferes with respiratory excursions and reduces pulmonary ventilation. Pain, *per se* or by reflex action, can limit respiratory movement and depth. The type and site of the incision influence respiratory excursion. Transverse incisions are under less tension and are therefore less painful. Upper abdominal incisions are influenced more by respiration; hence pain causes a restriction of abdominal movements and a splinting of the diaphragm. The position of the patient during and after operation can influence respiratory movements. Tight strapping of the upper abdomen and lower thorax, and gaseous distention can also cause a decrease in respiratory excursions. (3) *Position of the patient during and after operation.* A Trendelenburg position of at least 10 degrees allows secretions to gravitate to the mouth, where they can be removed. It is a common observation that postoperative atelectasis is uncommon after pelvic laparotomy. Most pelvic laparotomies are done with the patient in the Trendelenburg position. I have seen only one case of postoperative pulmonary atelectasis following a pelvic laparotomy, and that was in a patient whose spinal anesthesia had to be supplemented with a general anesthetic. Kidney operations necessitate the patient's lying on one side. As a result the lower lung is compressed and splinted by the weight of the body, and secretions tend to gravitate into the lower lung. A fixed position after operation predisposes to the accumulation of bronchial secretions; therefore, patients should be turned often. A slight Trendelenburg position immediately after operation, at least until the patient fully reacts from the anesthetic, is of importance in preventing atelectasis.

Symptoms and Physical Findings

Usually in massive collapse there is a sudden onset twelve to seventy-two hours after operation, with dyspnea, cyanosis, rapid pulse, high and irregular temperature, chest pain, and cough, with expectoration of thick, tenacious, grayish-green sputum. Elevation of temperature, a tight cough, and coarse rales over both lung fields are probably the only premonitory symptoms. Cases of the lobular or patchy type seem to have a slower and less violent onset with less marked symptoms. These cases can go on to massive collapse without pronounced symptoms.

On physical examination there is diminished expansion on the affected side; the trachea and apex beat of the heart are displaced towards the affected side; dullness or flatness is present on percussion of the involved lung or portion thereof; and breath sounds and rales are absent. Displacement of the mediastinal structures is the most important point in the differentiation of pulmonary atelectasis from pneumonia, as bronchial breathing may be present over the collapsed lung after expulsion of the mucous plug but before the lung re-expands.

In the patchy or lobular type there are coarse and musical rales over one or both lung fields, areas of diminished or absent breath sounds, and areas of impaired resonance on percussion. In these cases the symptoms subside more quickly than in a true bronchial pneumonia.

If the secretions plugging the bronchi are evacuated within a few hours by coughing or are removed by aspiration, then the lung may immediately become aerated and all signs and symptoms disappear, except for some temporary cough and expectoration. The longer the condition exists, the longer it takes for complete aeration of the lung to occur. During the subsidence of the process, coarse rales may be heard and areas of bronchial breathing may be demonstrated.

X-rays of the chest are confirmatory but are not absolutely necessary in every case.

Prognosis

The condition is rarely fatal in patients who are good operative risks, and recovery within a few hours to a few weeks is the rule. However, anoxemia and the increased cardiac load produced thereby may contribute to a fatal outcome of the disease for which the operation was performed or which was present before operation. Early diagnosis and proper treatment bring about a cure without complications in the vast majority of cases.

Treatment

Prophylactic:

1. Avoid elective surgery if any degree of upper respiratory infection is present, and also during epidemics of upper respiratory infections.

2. Treat oral sepsis before elective operations.

3. If feasible, use a Trendelenburg position of at least 10 degrees during operation.

4. Keep the mouth and pharynx clear of secretions during operation.

5. "Flush" the lungs thoroughly with 5-10 per cent carbon dioxide in oxygen at the end of the operation.

6. Employ firm but not too tight strapping of the wound.

7. If a basal anesthetic such as avertin has been used, or if the general anesthetic is of long duration, give respiratory stimulants such as caffeine, coramine, and metrazol during the period of reaction. Also stimulate respiration with carbon dioxide and oxygen inhalations.

8. Place the patient in the Trendelenburg position until he has fully reacted.

9. Change the patient's position frequently after operation, starting the moment he is returned to his room.

10. Encourage deep breathing and coughing on the part of the patient. Teach nurses to support the abdomen when the patient coughs.

11. Regulate narcotics so as to control pain, but not to depress respiration or cough reflex.

Active:

1. Give deep breathing exercises and inhalations of carbon dioxide and oxygen at the first sign of atelectasis.

2. Start sulfonamide drugs at the first sign of atelectasis, as they may prevent it, ameliorate the symptoms, or prevent complications.

3. Change the patient's position frequently, and if massive collapse has occurred, turn the patient on his sound side and roll him back and forth in this position (Sante's maneuver). This may produce a shifting of the exudate and result in an active cough that may clear the obstruction.

4. Employ oxygen therapy if the patient is anoxemic.

5. Remove the plug with the bronchoscope or by aspiration with a tracheal catheter.

6. Continue sulfonamides in persistent cases and give expectorant drugs.

7. Diathermy and x-ray treatment of the chest may be of value in stubborn cases.

Review of Cases

I will now attempt to review and analyze 18 cases of postoperative atelectasis collected over a period of five years. These cases were collected from the surgical services of four different hospitals, and all but 3 are from my own practice. The 18 cases include 8 cases of massive collapse, 8 cases of partial collapse, and 2 questionable cases.

Of the 8 patients with massive collapse 7 were of the white race and 1 was a Negro. There were 6 males and 2 females. The ages ranged from 15 to 49. Appendectomy without drainage was the operation performed in 6 cases, pelvic laparotomy in 1, and closure of a perforated peptic ulcer without drainage in 1. Avertin-ether anesthesia was used in 3 cases, spinal anesthesia in 3 cases, straight ether in 1, and spinal anesthesia supplemented with gas, oxygen, and ether anesthesia in the remaining case. Massive collapse of the lower right lobe occurred in 5 cases, of the lower left lobe in 2 cases, and of the entire lung in 1 case. Premonitory symptoms occurred within twelve to forty-eight hours after operation in all cases. Only 2 cases had what might be called a very sudden onset. Definite massive collapse could be demonstrated on physical examination within twelve hours to five days after operation. Two patients were extremely ill, 3 acutely ill, 2 only moderately ill, and 1 had very few symptoms referable to his atelectasis. Recovery was prompt in 5 cases, complete re-expansion occurring in from two to five days. In 1 case one week was required for complete aeration of the involved lobe. Two patients required from two to three weeks for complete disappearance of all signs of atelectasis. However, the temperature, pulse, and respiratory rates were normal in all cases within five days. The highest recorded temperature was 104 F., the highest pulse rate was 155, and the highest respiratory rate was 37. Expectoration of thick, tenacious, grayish-green sputum was noted in all cases. Wound infections in 2 cases and an acute pyelo-nephritis in 1 case caused an undue prolongation of hospitalization, but in the remaining cases hospitalization was prolonged only a few days. Three patients had slight upper respiratory infections on admission, 1 had a very pronounced upper respiratory infection, and 1 had just recently recovered from an upper respiratory infection. There was no evidence of upper respiratory infection or history of recent infection in the 4 remaining cases. Oral sepsis was noted in one of the patients with

upper respiratory infection and he said he had been gassed in World War I. An asthmatic history was given by the patient who had recently recovered from an upper respiratory infection. Continuous duodenal suction by a nasal tube was used in one case and may have been a factor in the production of atelectasis. Sulfonamide drugs were used in 5 cases and seemed to be of value, but the mild symptoms and rapid recovery may have been coincidental.

Of the 8 patients with partial atelectasis 6 were white and 2 were Negroes. There were 6 men and 2 women. Their ages ranged from 14 to 42. The operations performed were as follows: appendectomy with drainage, 1 case; appendectomy without drainage, 2 cases; herniorrhaphy, 1 case; cesarean section, 1 case; excision of Meckel's diverticulum, 1 case; gastro-enterostomy, 1 case; and partial ileo-colectomy, 1 case. Avertin-ether anesthesia was used in 2 cases, spinal anesthesia in 3 cases, straight ether in 2 cases, and spinal anesthesia supplemented with gas, oxygen, and ether anesthesia in the remaining case. The partial atelectasis was confined to one lobe (lower right) in 1 case, being patchy in the remaining cases. All patients were somewhat uncomfortable, but none were acutely ill. Expectoration of thick, tenacious, grayish-green sputum was noted in all cases. Recovery was fairly rapid in all cases. Hospitalization was not prolonged because of the atelectasis in any case. Upper respiratory infection was noted in 4 cases on admission. Oral sepsis was present in 1 patient who had an upper respiratory infection. A questionable history of coronary disease was obtained in 1 case. Continuous duodenal drainage by nasal tube was used in 1 case (gastro-enterostomy). One patient was later found to have a tuberculous area in one lung. This patient had a prolonged ether anesthesia and was in a state of shock for thirty-six to forty-eight hours following the operation (an ileo-colectomy). Gaseous distention was a factor in 1 case. Sulfonamide therapy was used in 5 cases, and apparently had a favorable influence on the condition. I believe that it prevented massive collapse in 1 case.

Of the 2 questionable cases of atelectasis, 1 followed a herniorrhaphy and appendectomy under spinal anesthesia supplemented with sodium pentothal. Gross infection of the wound occurred, and the patient also developed a pulmonary condition that was either an atelectasis or an embolism. His hospital stay was prolonged for several weeks. The other patient was an 18 year old Negro male in whose case the pre-operative diagnosis was bronchial pneumonia and acute suppurative appendicitis. Operation was performed under local anesthesia. Death occurred on the sixth postoperative day from anoxemia. In this case atelectasis was apparently superimposed on the pneumonia. These 2 cases are presented because I believe that bronchoscopy would have aided in the diagnosis and possibly in the treatment of the first case. Bronchoscopic removal of the thick tenacious secretion would have undoubtedly benefited the second patient. However, a bronchoscopist was not available for either case.

Summary and Conclusion

The pathology, etiology, symptoms and physical findings, prognosis, and treatment of postoperative pulmonary atelectasis have been reviewed. Eight cases of massive collapse, 8 cases of partial atelectasis, and 2 questionable cases have been reviewed. Only one death occurred, and that was in a questionable case. The condition is a serious one, but rarely fatal. It occurs more often in men than in women. Antecedent upper respiratory infection seems to be a very important factor. The condition may occur following any type of anesthesia but I believe that avertin-ether anesthesia, prolonged general anesthesia, and spinal anesthesia supplemented with a general anesthesia produce the majority of the cases of postoperative pulmonary atelectasis. I believe that the lowest incidence follows nitrous oxide, oxygen and ether anesthesia. I have had no experience with cyclopropane.

The most important factors in the management of the condition are prophylaxis, recognition of potential cases, early diagnosis, and the early institution of proper and adequate therapy.

Wear and Tear.—Wear is a natural and legitimate result of lawful use, and is what we all have to put up with as the result of years of activity of brain and body. Tear is another matter. It comes of hard or evil usage of body or engine, of putting things to wrong purposes, using a chisel for a screwdriver, a penknife for a gimlet. Long strain, or the sudden demand of strength from weakness causes tear. Wear comes of use; tear from abuse.—Weir Mitchell, quoted by Arlie V. Bock: Fatigue, Tr. and Studies Coll. Physicians Philadelphia 10:75 (June) 1942.

NURSING AS THE FOUNDATION OF MEDICINE

WILBURT C. DAVISON, M. D.
DURHAM

Nursing sometimes is regarded merely as one of the aides of medicine, but it really merits recognition as the cornerstone of its foundation. Patients are helped as much by nursing as by medical care. If examples are needed, recall that of the three hundred and twenty-nine pediatric diseases, two hundred and twenty-nine are not, at present, affected by medical skill; the patients usually recover or succumb regardless of therapy[1]. However, the comfort and well-being of these patients are materially improved by good nursing care. Of the other one hundred diseases of children, thirty-seven can be prevented by procedures, most of which can be done and usually are done by nurses, and sixty-three respond to adequate therapy, which with rare exceptions cannot be instituted without excellent nursing skill. In fact, prophylaxis and therapy are almost impossible without nurses. What would modern hospitals and present day operating rooms be without nurses? One need only remember some of the hospitals during the last war when nurses were not always available. Contrast the office of a physician or of a dentist who has a nurse assistant with one suffering this lack. The importance of the nurse recalls Darwin's observation of a slave ant, which, "introduced into a company of helpless, starving master ants, instantly set to work, fed and saved the survivors, and put all to rights."[2]

This interdependence of medicine and nursing is not new; in fact the former profession has risen to eminence only during those epochs in which nursing has reached great heights. To many, nursing began with Florence Nightingale; but actually the profession is as old as medicine itself. During the four main cycles of medicine—*Primitive, Renaissance, Pharmacy,* and *Modern*—nursing approached adequacy in three, and only in these three did medicine really progress[3].

From the Department of Pediatrics of Duke University School of Medicine, and Duke Hospital, Durham, N. C., with the valuable assistance of Miss Judith Farrar, Librarian of Duke Hospital.

1. Davison, W. C.: The Compleat Pediatrician, ed. 8, Durham, N. C., Duke University Press, 1940, 816 pp.
2. Darwin, C. R.: The Origin of Species, John Murray, 1859, 337 pp.



Fig. 1. Court of the hospital of Beaune, France (L'Hotel Dieu), founded 1443. (From La Grande Encyclopedie, 5:1053, Courtesy Librairie Larousse, Paris; Photograph by Ronco Aine, Beaune, Cote d'Or, France).

Primitive Era

The prehistoric, Egyptian, Sumerian, Oriental, Greek, Roman, Byzantine, Mohammedan, Jewish and medieval periods ended in 1438 A. D., but the peak of the era was reached during the time of Hippocrates (460-370 B. C.). The greatest medical contribution of this period was in therapy, and although the use of many drugs was known, treatment usually was confined to fresh air, good diet, massage and hydrotherapy—procedures which are possible only if nursing is skilled. It is true that the nurses of this period were men, but they were nurses nevertheless. The Asclepieion at Epidaurus was as much a nursing home or sanatorium for physiotherapy, hydrotherapy and psychotherapy as any modern spa, hydrobad or Warm Springs. Hot douches, baths, poultices and even hot water bottles were used. During the eight centuries which followed the Hippocratic era, nursing lapsed into oblivion, and medicine declined with it. However, with the beginning of Christianity, it was the avowed duty of all Christian men and women to tend others in sickness, and by the fourth century, Deaconesses in the early

3. Davison, W. C.: The Evolution of Therapy—A Plea for Treating the Patient as Well as His Disease, South. Med. & Surg. 100:457-458 (Oct.) 1938.



Fig. 2. A ward in the hospital of Beaune, France (L'Hotel Dieu), founded 1443[4].

Church constituted a recognized order, devoted to the sick and the needy. The Widows are mentioned with the Deaconesses in caring for patients in the Apostolic Church Order[4]. Later, during the Crusades, military nursing orders arose, as for example, the Knights Hospitalers of St. John of Jerusalem, of which there was a female branch.

Renaissance

By the time of the Renaissance, nursing again rose rapidly. A product of this new era was the founding of the L'Hotel Dieu at Beaune in 1443 by Nicholas Rolin[5] (figs. 1 and 2). Numerous other hospitals were established throughout Europe, and the need for trained nurses greatly increased. Associations of women were formed to care for the patients in these new institutions, but they soon required help. To assist the Paris Association in 1630, Mlle. Le Gras and St. Vincent organized a few strong country girls, called "Filles de Charite", who later, as the need for special preparation and training was realized, became the Order of the Sisters of Charity[4] (fig. 3). It is no coincidence that the medicine of this epoch rose to eminence with the work of da Vinci in anatomy, St. Marthe in pediatrics, Harvey in physiology, Pare in surgery, and many others.

4. Seymer, L. R.: A General History of Nursing, New York, The Macmillan Co., 1933, 317 pp. Figures 2, 3 and 5 are reproduced with the permission of the author and publisher.
5. Kett, C.: God's Hostelry in Beaune, Trained Nurse and Hosp. Rev. 90:129-133 (Feb.) 1933; also Une Visite A L'Hotel-Dieu de Beaune, Dijon (France), Editions du Raisin.

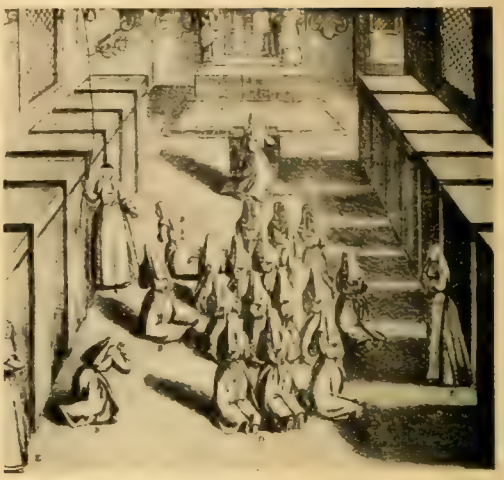


Fig. 3. The novices' dormitory in the hospital of Paris (L'Hotel Dieu). (From a print of the latter half of the seventeenth century in the Bibliotheque Nationale.)[4]

Cycle of Pharmacy

During the next three centuries expansion and inflation occurred, and hospitals sprang up all over the world, far beyond the limits of the trained sisterhoods. In spite of the magnificent clinical contributions of Sydenham, von Rosenstein, Cadogan, Rush, and Laennec, many of the physicians of this era made strenuous efforts to treat disease rather than the patient. They advocated the most heroic procedures, and the welfare and comfort of their patients suffered rather than improved from their drastic remedies. A Daumier print of a Garde-Malade (fig. 4) illustrates the depths of degradation reached by the nurses of almost all of the hospitals, except those operated by the Catholic Orders, in which discipline and decency prevailed[6]. Apparently those responsible for the management of the non-Catholic hospitals could not free themselves from the idea that women in order to be faithful and good nurses must belong to some religious society and be bound by vows; consequently they made little or no effort to provide adequate training and living conditions for nurses who did not belong to religious orders[4].

6. Garrison, F. H.: An Introduction to the History of Medicine, ed 4, Philadelphia, W. B. Saunders Co., 1929, 996 pp.



Fig. 4. A French "practical" nurse (Garde-Malade) of 1842 (Daumier print).

Modern Era

The modern era of medicine was ushered in by the regeneration of nursing by Theodor Fliedner, pastor of Kaiserswerth on the Rhine, and his wife, Friederike, who in 1836 revived the ancient Church Order of Deaconesses. About 1850, Florence Nightingale came to the Fliedners for training. After her memorable service in the Crimean War, Florence Nightingale established, in 1860, the first training school for "new style nurses", which was similar to those of today[6] (fig. 5). Her definition of nursing as "helping the patient to live" has never been improved. The modern applications of pathology, bacteriology, biochemistry, and the advances in medicine would have been impossible without this conception of nursing. It is not strange that surgery, pediatrics and preventive medicine did not develop until nursing had progressed. Only rudimentary traces of these specialties had existed prior to this era; they could not function without skilled nursing. Specific therapy, and especially general treatment and physiotherapy require the best possible nursing. "The laying on of hands," when done intelligently, still produces beneficial results. As the late Dr. Francis W. Peabody once wrote: "The secret of the care of the patient is caring for the patient"[7]—that is, being personally interested in the patient as a human being and not merely as the seat of a definite disease[8].



Fig. 5. Florence Nightingale and her nurses at Claydon, England, in 1867 (From a photograph in the possession of the Nightingale Training School, St. Thomas's Hospital, London)[4].

The other side of the picture also must be mentioned. Just as the advances of nursing in the primitive, renaissance, and modern periods enabled medicine to progress, so in the age of pharmacy the over-expansion of hospitals beyond the limits of the trained sisterhoods caused medicine to reach a low ebb. Will our modern expansion of hospitals, some of which have inadequate training schoools for nurses, stop medical progress? With this consideration in mind, should not the medical profession become more vitally interested in nursing education? Many nursing procedures such as bathing and feeding infants, giving enemas, etc. should be, and sometimes are, taught to medical students by nurses, and some purely medical techniques are learned by nurses; but that does not mean that doctors are being made nurses or vice versa. Nursing education and medical education, though inherently different, both seek the same end—namely, the care, comfort, and well-being of the sick—, and anything which hampers one is deleterious to the other.

7. Peabody, F. W.: Doctor and Patient, New York, The Macmillan Co., 1930, 95 pp.
8. Oliver, J. R.: Personal communication.

In reactivation of arrested tuberculosis, pregnancy and birth are relatively unimportant when compared with work and worry and the loss of sleep caring for a colicky baby. Lewis J. Moorman, M.D., Trans. of Nat. Tuber. Assn., 1941.

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April, 1943

THE NATIONAL CONFERENCE ON PLANNING FOR WAR AND POST WAR MEDICAL SERVICES

On Monday, March 15, there was held in New York a most important all-day meeting, known as the National Conference on Planning for War and Post War Medical Services. It was under the auspices of the Carlos Finlay Institute of the Americas, with the cooperation of the American Medical Association, the American College of Physicians, the American College of Surgeons, the American Drug Manufacturers Association, the American Hospital Association, the American Pharmaceutical Manufacturing Association, the American Pharmaceutical Association, the American Surgical Trade Association, the Wholesale Surgical Trade Association, and the National Physicians' Committee for the Extension of Medical Service.

The meeting was attended by approximately eight hundred physicians and leaders in allied medical industries. The scope of the meeting may be realized from the program, which is to be found in the Bulletin Board. The papers, with discussions, are soon to be published in the *Journal of the American Medical Association*, and most of them will repay careful reading. Here an attempt will be made to give only general impressions.

In this conference, for the first time, representatives of the medical profession and of the allied manufacturing organizations met to discuss their common problems. So many questions of mutual concern have arisen as a result of the world conflict that it was quite fitting that these groups should meet around a common council table. It was the consensus of virtually all present that the meeting accomplished a vast amount of good. Those who attended went away with a much clearer idea of the problems to be faced immediately, as well as in the more distant future, and with the feeling that all groups represented will work together in much closer harmony as a result of the meeting.

The conference had no legislative or executive power, and hence no motions or resolutions of any kind were introduced; but considering the wide variety of topics discussed. there seemed to be rather remarkable unanimity among the audience.

The chief impressions that at least one observer carried away with him were:

1. The nature of medical practice will be changed as a result of the war. It will be necessary for us to brush up on our knowledge of some diseases regarded as peculiar to the tropics, and on others which we thought were virtually obsolete. Malaria, the dysenteries, plague, typhus fever, and yellow fever are among the diseases which will assume greatly increased importance. Influenza may or may not play the villain's role it did in the first World War.

2. The shortening of the educational process, including medical education, may be permanent; this remains to be seen.

3. The United States and her allies will be militarized long after the actual cessation of hostilities; this will mean that large numbers of doctors must be kept in the armed forces. Those in civilian practice may have to surrender some, if not much, of their former independence and submit to some form of government control. Certainly,

greater activity of public health departments may be expected.

4. In world rehabilitation, the medical profession will be expected to play an important part; how important remains to be seen. The Red Cross is the logical agency to take the lead in distributing relief to the world.

5. Plans should and doubtless will be made to forestall the tremendous waste of medical and surgical supplies left over at the close of the war. Many of these will be needed by the Red Cross in the work of rehabilitation; the hospitals will need to replenish their depleted stocks; and various other outlets for surplus materials can be found.

6. The task of planning for war and post war medical services is so gigantic and each of the many groups now functioning is so engrossed with its own problems that it seems urgently necessary to have a single agency or committee to coordinate the various medical and allied advisory groups associated with official and semi-official agencies in the great task of winning the war and of preparing for its aftermath.

* * * *

MILITARY MEDICINE

Confronted with the prospect of a long and exhausting war, which must inevitably strain the financial resources of the country to the breaking point, the Army and Navy have embarked upon a costly scheme of medical education. It is proposed that the government shall supervise the education of our future physicians, paying the complete cost with the tax-payers' money.

This proposal will arouse in rational minds, unaffected by the hysteria of war, and not indoctrinated with the political theory of "spend and elect", certain vital questions.

1. From what source has the demand originated for government financing of medical education? Certainly not from responsible medical authorities, for there is an abundance of student material available at no cost whatsoever to the tax-payer. Every decent medical school is flooded with applications for admission, and parents have never been in a better financial position to pay for the medical education of their sons.

2. Why should certain young men be sent to the firing line by the Draft Boards while others receive a long and valuable education at the expense of the very tax-payers whose sons are suffering and dying on the fields of battle? Is this Democracy or is it a pernicious form of Bureaucracy?

3. Does the scheme proposed by the government assure to the armed forces a more certain supply of well-trained physicians? Obviously not. Under present arrangements every medical student is in the Reserve Corps, subject to orders on the completion of his training. Nothing is gained by enlisting students in the Army or Navy, unless it is considered highly desirable that they have fifty dollars a month to spend on movies, beer and other pleasant relaxations. As to the *quality* of training under the two systems, no man who can think without sweating could possibly believe that government controlled medical education would offer one single advantage over the well-tried system now in operation.

And yet, so far have we gone along the road of governmental dictation, that the proposed scheme, non-sensical and wasteful as it is, will almost surely be adopted. In conversation recently a highly placed member of the Senate Appropriations Committee said that the armed forces had at their disposal enough funds, which had been granted to them under the plea that war conditions made it undesirable to break down appropriations into specific proposals, to enable them to expend the hundred million dollars a year which their plan would cost. Perhaps we shall have to seek some consolation from the dictum that "War is Hell", both on the battle field and on the home front—not forgetting Dr. Samuel Johnson's observation that "patriotism is the last refuge of a scoundrel."

* * * *

DR. FONSO B. WATKINS

The news that Dr. Fonso B. Watkins had fallen on sleep was no surprise to his medical friends who had seen him within the past year. It was obvious to the most superficial observer that the Grim Reaper had placed his mark upon him. He himself was too keen a clinician to have failed to know that his days were numbered; but he did not slacken his pace until the very end. It would have been easy for him to avoid the harrowing experience of the "investigation" of his beloved institution last year, simply by stating the obvious truth that he was too

sick to go through with it; but like a good soldier and a brave leader, he never once asked pity for himself.

Dr. Watkins was not one who made numerous friends; he was too reserved—perhaps too shy—for that. Those who were honored by his friendship, however, he grappled to his soul with hoops of steel. He did not seek the limelight, preferring to work quietly and steadily for the improvement of the great hospital entrusted to him. One evidence of his vision may be given: Among the chief criticisms brought out in the hospital investigation was the lack of outdoor courts for the patients; yet Dr. Watkins was going ahead as rapidly as possible with the preparation of just such courts for the patients' recreation.

It is quite possible—even probable—that during this past year, Dr. Watkins may have read with understanding the autobiography of Hans Zinsser, written while its author was himself facing the inevitable end of leukemia. If so, he probably applied to himself part of Zinsser's last sonnet:

Now is death merciful. He calls me hence
Gently, with friendly soothing of my fears
Of ugly age and feeble impotence
And cruel disintegration of slow years.
Nor does he leap upon me unaware
Like some wild beast that hungers for its prey,
But gives me kindly warning to prepare:
Before I go, to kiss your tears away.[1]

1. Reprinted from Zinsser, Hans: As I Remember Him, Boston, Little, Brown & Company, 1940, p. 441.

* * * *

INVALID DIETS AND FOOD RATIONING

Of interest to all who are concerned with diets for invalids is Ration Order 13, issued by the Office of Price Administration under date of February 9, 1943. This order covers all canned, dried, and frozen fruits and vegetables. Article II, Section 2.5 of the order reads as follows:

"Consumers who need more processed foods because of illness may apply for more points. (a) Any consumer whose health requires that he have more processed foods than he can get with War Ration Book Two, may apply for additional points. The application must be made, on OPA Form R-315, by the consumer himself or by someone acting for him, and may be made in person or by mail. The application can be made only to the board for the place where the consumer lives. He must submit with his application a written statement of a licensed or registered physician or surgeon, showing why he must have more processed foods, the amounts and types he needs during the next two months, and why he cannot use unrationed foods instead.

(b) If the board finds that his health depends upon his getting more processed foods, and that he cannot use or cannot get unrationed foods, it shall issue to him one or more certificates for the number of points necessary to get the additional processed foods he needs during the next two months."

The application form referred to above, OPA Form R-315, is apt to be somewhat confusing to patients. It is titled "Sugar Special Purpose Application" and was developed primarily to meet the need for home canning. It is being used temporarily, until a more adequate form can be gotten out.

It is anticipated that the procedure indicated in Section 2.5 above may be changed somewhat in the future, in which case due notice will be provided.

* * * *

AN INSPIRING REPORT

Under the date of March 17, a letter from Dr. Hubert B. Haywood, Chairman of the Legislative Committee of the State Medical Society, recounts the activities of that committee. It is indeed inspiring. Every bit of legislation that would have been detrimental to the interests of the medical profession, and to the public welfare, was defeated. The necessary steps were taken to set up a Central Board of Directors for the State institutions for mental disease, and to provide for increased appropriations to care for their patients.

Dr. Haywood had the whole-hearted cooperation of President Donnell Cobb, and of the other members of the committee, but he deserves great commendation for his wise generalship. The record of his committee reminds one of the schoolboy who, after spelling every word of a hard lesson correctly, was rewarded by his teacher with "Pretty good, Johnny"—to which he replied, "Pretty good, hell! It's perfect!"

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Release: A Release executed by the injured party and based on a valuable consideration is a complete defense to an action for damages for the injuries.

This is a case which was instituted to recover damages for personal injuries resulting from an automobile collision and to vacate and annul a release which had been procured allegedly by fraud.

On January 28, 1940, four automobiles were proceeding along a highway. Snow had been removed from the hard surface portion of the highway and was banked on the shoulders of the road. The traveled portion of the road was covered by a thin coating of ice, which was melting.

The plaintiff and her husband and child were riding on the back seat of the third car. The defendant was driving the fourth car. The front car attempted to turn into a filling station. This caused the second car to stop suddenly. The driver of the third car, seeing the situation, put on brakes and, in order to prevent a collision, cut the front of his car into a snow bank. The defendant driver then skidded into the car occupied by the plaintiff, striking it with such force that she, her husband, and her child were thrown to the foot of the automobile. As a result, the plaintiff's sacro-iliac joint was dislocated, her pelvic bone was fractured, her collar bone and one or more ribs were broken, and other injuries were sustained.

On June 20, 1940, the plaintiff and her husband executed and delivered to agents of the insurance company (one of the defendants) three releases. One, in consideration of $1,975.00, released all claims of the plaintiff; one, in consideration of $25.00, released all claims for injuries to the child; and the third acknowledged payment of medical and other expenses incurred to that date in the sum of $174.00.

On July 12, 1941, the plaintiff instituted this suit. The complaint stated two causes of action. The first was for damages proximately resulting from the alleged negligent manner in which the driver of the automobile operated the car. The second was for damages for the wrongful conduct of the defendants in procuring the execution of the release by the plaintiff, which conduct the plaintiff alleged was pursuant to and in furtherance of a conspiracy entered into between the defendants.

On motion of the defendants made at the conclusion of the evidence for the plaintiff, judgment was entered as of nonsuit, whereupon the plaintiff excepted, and appealed to the Supreme Court.

When this case came on to be considered by the Appellate Court, the Justice writing the opinion referred to the evidence, which showed that the plaintiff made the settlement and signed the release approximately five months after she left the hospital, and that the parties were negotiating over a long period of time. Before signing the release, the plaintiff discussed the matter with her husband, consulted her physician, and, apparently after satisfying herself, attached her signature to the release, which stated definitely that recovery was uncertain. She had an opportunity to read the contract, and should have known all of its contents.

Upon the basis of the above facts, the evidence was insufficient to support the allegations of fraud, and as a consequence the judgment of the lower court was affirmed. The Supreme Court did not take up the matter of damages resulting from the alleged negligent manner in which one of the defendants operated the automobile, inasmuch as the release signed by the plaintiff was found to be without fraud, and was a complete defense to an action for damages against all defendants, including the driver of the car, the owner of the car, the insurance company, and its representative, who obtained the release. (North Carolina Supreme Court Reports, Vol. 222, page 470. Decision rendered Fall Term, 1943.)

MILITARY MEDICINE

Army's 1943 Recruiting Program Will Require 6,900 Physicians

The 1943 recruiting program of the Surgeon General of the Army calls for the commissioning of 6,900 physicians and approximately 3,000 hospital interns and residents, it is reported in **The Journal of the American Medical Association** for March 13 in an outline of the new procedure of processing physicians, dentists and veterinarians for the Army. The program also calls for the commissioning of 4,800 dentists and 900 veterinarians.

Physicians will be procured from the following twenty states and the District of Columbia: California, Colorado, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont and Wisconsin.

The following states have already contributed more physicians to the armed forces than the sum of their 1942 and 1943 quotas and will not be called on to furnish any more physicians, except interns and residents and except special cases for specific position vacancies, during 1943: Alabama, Arizona, Delaware, Georgia, Idaho, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, Tennessee, Texas, West Virginia and Wyoming.

It is stated that at present there will be no procurement of physicians, except interns and residents and in special cases for specific position vacancies, in those states not listed above. There will be no procurement of dentists, except special cases for specific position vacancies, in the following sixteen states: Alabama, Arizona, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

At the present time there are no restrictions on the recruiting of veterinarians.

In the instructions issued by the Army it is pointed out that the Surgeon General has discontinued all medical officer recruiting boards and that under the new procurement program no physician, dentist or veterinarian will be commissioned in the armed forces of the United States until he has been declared "available" by the Procurement and Assignment Service of the War Manpower Commission.

In each state the Procurement and Assignment Service has set up three state chairmen; medical, dental and veterinary. Each of these prepares a monthly quota list of physicians, dentists and veterinarians who are apparently suitable and who are available, for commissioning in the Army of the United States. This list is submitted to the central office of the Procurement and Assignment Service which sends a communication inviting such individuals to apply for service with the armed forces. On the reply card enclosed with the invitation the individual states his preference for the Army, Navy

or Medical Department of the Air Forces. These reply cards are sent by the potential applicants to the state chairmen of the Procurement and Assignment Service who in turn submit lists of such potential applicants to the Officer Procurement Service of the Army.

On receipt of such lists the officer procurement district office contacts the potential applicant and arranges for an interview regarding a commission.

Applicants will be requested by the officer procurement district office to complete all papers and take all steps required of them within fourteen days of the date of such request. If this is not complied with, a report thereon will be transmitted by the procurement district office to the state chairman of the Procurement and Assignment Service.

The decision as to the grade and appointment to be recommended for each candidate rests with the Surgeon General, not with the Officer Procurement Service.

War Conference

The American Association of Industrial Physicians and Surgeons,

The American Industrial Hygiene Association, and

The National Conference of Governmental Hygienists—are combining their annual meetings in a four-day "WAR CONFERENCE" at Rochester, New York, May 24-27, 1943. Among the problems to be discussed from a practical standpoint are:

The mass entry of women into industry;

Older-age employees, with their various associated problems; proper placement and employability considerations of the 4F rejectees;

Rehabilitation and proper employment of those already discharged from the military services because of disabling conditions;

Toxic and other hazards from new substances, new processes, and the use of substitute materials;

Absenteeism; fatigue; nutrition;

Effects of long hours; double shifts; two-job workers; overtime; increased industrial accident rates;

Advances in the treatment of illnesses and injuries, and many others.

Physicians and surgeons, hygienists, engineers, nurses, executives—all who are interested in the problems of industrial health and their solution—are invited to attend as many of the sessions as they can arrange for; no registration fee is required.

Medical and Surgical Relief Committee of America

To help the Medical and Surgical Relief Committee of America continue its vital work of providing emergency medical kits to Coast Guard patrol boats and Navy sub-chasers, an urgent appeal for drugs and instruments has been issued by the Committee to surgeons, physicians, and medical supply houses.

Among the items sorely needed to equip the emergency kits are artery clamps, splinter forceps, scalpels, probes, grooved directors, sulfadiazine tablets, sulfadiazine ointment 5%, sulfathiazole tablets, and sterile shaker envelopes of crystalline sulfanilamide. Any other spare medicines or surgical instruments are, of course, equally welcome.

Specially designed for sub-chasers and patrol boats, the medical kit is a small portable case filled with essential medications and emergency instruments. It is complete enough to cover accidents and war casualties until the ship reaches a base hospital.

Please send your contributions to your local medical society or to the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York, N. Y.

BULLETIN BOARD

PRESIDENT'S MESSAGE

Our state, a part of our country, is now part of a world at war. The physicians of our state and our country have no other thought but to do their best towards winning this war.

The physicians of North Carolina have responded to the call of their country with a patriotism of which we will always be proud. As a result of this, there are only five other states in which the doctor-patient ratio is greater than it is with us.

This means harder work and longer hours for all. It also means that we must see to it that we continue to be properly informed about all medical matters so that we may discharge our increasing responsibility efficiently.

It is a strange truth that the science of Medicine makes its greatest advance in time of war. It is the duty of every physician to keep abreast of these advances, to make them always available to the people who have confidence in and who depend upon the physicians to advise them wisely and to treat them well.

The Ninetieth Annual Session of the Medical Society of the State of North Carolina meets next month. Nationally known physicians, recognized leaders in their chosen fields, will speak to us. Our own members will discuss the experience and progress of their own work. Since practically all national scientific meetings have been cancelled, our state meeting will offer the one opportunity to all North Carolina doctors to inform themselves on recent advances.

Dr. Vannevar Bush, President of the Carnegie Institution of Washington, and formerly President of the Massachusetts Institute of Technology, expresses the opinion that "Medical meetings by all means should be continued and with even greater emphasis than before." Even though the American Medical Association meeting will not be held, our own General Fred Rankin, President of the American Medical Association, expressed the hope that state and district meetings would not be cancelled; he stated that we could not afford to stop medical progress, and that it was more necessary than ever that physicians get together for an exchange of views.

An excellent and informative program awaits you, and you owe it to your patients, especially in these times, to keep abreast of present scientific advances. Our meeting in Raleigh should make us all better doctors, more proficient to serve our people. And this is what we want, and what they want.

DONNELL B. COBB, M. D.

SECRETARY'S MESSAGE

NINETIETH ANNUAL SESSION MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

RALEIGH

MAY 10, 11 AND 12, 1943

Naturally, War Medicine is an appropriate theme for the coming Ninetieth Session of the Medical Society of the State of North Carolina. The Official Call is for May 10, 11 and 12 at Raleigh, Headquarters—Hotel Sir Walter.

The decision to hold our Annual Session this year, in spite of war conditions, was not made without mature deliberation. Each year for many years I have looked forward to the Annual Sessions of our State Medical Society as a time to renew old acquaintances as well as to gain new knowledge by attending the scientific discussions of our programs. This time our youth with its enthusiasm and our younger men with their strength are in the armed forces. (Commander Max Lapham, USN, Dean of Tulane University School of Medicine, in an address to the American College of Surgeons on March 22, stated that the South is tops at present in its quota of doctors given to the armed forces.) They are being directed by master military minds and are in another sphere of activity. As a profession we have never had such an opportunity to serve our country—and we are doing it well and willingly. The scene on the home front is not so rosy when we stop to consider that 42,000 American physicians have volunteered for military service as of January 1, 1943. Of this number approximately 450 are from our own rank and file in North Carolina. Naturally, those who remain are overworked.

Civilian medical practice in war time resolves itself to eighty hours per week, seven days per week for a considerable number of physicians on the home front. They need some change, some relaxation, as well as to gain brand new information regarding medicine and the war. We are planning timely subjects for our Ninetieth Annual Session—subjects that will be beneficial from every standpoint to the physicians of the state, with newer and better ideas for those of our number who will soon join the armed forces as well as those of us who will remain in civil practice.

As usual, the House of Delegates will meet promptly at 2 o'clock on Monday afternoon, May 10. There are some very important measures to be brought before the governing body at this session; therefore, each member is urged to be present and to be ON TIME.

Also on Monday afternoon at 2 o'clock the Health Officers' Section of the North Carolina Public Health Association will meet. A very interesting and instructive program has been arranged for this meeting. The regular meeting of the North Carolina Public Health Association will be held later in the year.

On Tuesday morning, May 11, at 7:30 o'clock, the Officers' Breakfast for the presidents and secretaries of the various county medical societies will be held. Last year's meeting proved a successful one and, from all that can be learned, was very beneficial to these officers in carrying out their work during the remainder of the year.

The First General Session will be held in the Virginia Dare Ball Room on Tuesday, May 11, at 9:30 a.m. A splendid program has been arranged. Our guest speaker will be Captain Waltman Walters of Corona, California. This session will be closed with a short address by Governor Broughton, whom we all know to be vitally interested in the medical profession and in all phases of health work in North Carolina.

Tuesday afternoon will be devoted to Sectional Meetings which, from the programs received, will be well up to the high standards that have always characterized these sessions.

As a war measure, we have purposely omitted all social functions except the annual President's Night Dinner and Dance. With Paul Ringer as Toastmaster for the Banquet, everyone can rest assured that it will be conducted with grace and with dignity. An address by Professor H. E. Spence of Duke University will be both humorous and inspirational, highly entertaining and, at the same time, interspersed with a serious trend in keeping with the times. I am confident he will keep everyone greatly amused for

the thirty minutes he will devote to our entertainment. Following Prof. Spence's address Wallace, The Magician of Durham, will hold the floor for thirty minutes. I predict that this President's Night Dinner will long be remembered as an evening of merriment and inspiration.

The dance floor will be ready for the President's Ball promptly at 10 o'clock, when Don and Mrs. Cobb, with their usual grace and charm, will lead the way to a very enjoyable conclusion to the one social event of the Ninetieth Annual Session.

On Wednesday morning, May 12, promptly at 9:15 o'clock, we will assemble for the Second General Session, with highly instructive and important topics to be brought before the profession. The guest speaker for this session will be Lt. Col. Charles W. Mayo, son of the late Dr. Charles H. Mayo, who is a worthy successor to the illustrious Mayo brothers of Mayo Clinic fame.

On Wednesday afternoon, other Sectional Meetings will be held.

As usual the Alumni Luncheons will be held on Tuesday and Wednesday, the "in-state" alumni holding their luncheons on Tuesday at 12:30 p.m. and the "out-of-state" alumni holding their luncheons on Wednesday at 12:30 p.m. The North Carolina alumni of the Medical College of Virginia will hold a luncheon this year for the first time, in the Manteo Room of the Sir Walter Hotel at 12:30 on Wednesday. Dr. B. C. Willis of Rocky Mount is in charge of arrangements for this luncheon, and I urge all of you Medical College of Virginia alumni to make your reservations for this luncheon with him at once.

This year we are inaugurating a Press Room in order that advance information may be given regarding essayists and speakers and their topics.

Please make your hotel reservations at once. Raleigh's hotels are as follows:

Hotel Sir Walter
Carolina Hotel
Andrew Johnson Hotel
Raleigh Hotel

In spite of thin tires and gasoline rationing, from all sections the doctors of the state indicate that they are saving their coupons so that they may go to Raleigh to gain further knowledge to aid them here on the home front in their contribution toward the winning of the war.

The Auxiliary to the Medical Society is also restricting its program in so far as social activities are concerned. They will meet for only one day, Tuesday, May 11. Their program is brim-full of interesting and informative talks and discussions. I urge all you wives, if possible, to accompany your husbands to this, our Annual Meeting.

Doctors and Auxiliary Members, remember this is a war-time meeting. Do your part. Share your cars. Come early and stay late. You need this change as well as the inspiration and information you will receive.

—ROSCOE D. MCMILLAN, M.D.

SPECIAL WARNING BULLETIN*

SUBJECT: Epidemic Kerato-Conjunctivitis

Incubation period. Five to ten days.

Clinical Manifestations: The onset may be preceded by a low fever and mild generalized malaise. The local ocular symptoms are merely those of a foreign body or conjunctival irritation. One eye is usually affected first, and in a large percentage of cases the second eye becomes infected within five to eight days. Preauricular and submaxillary glandular involvement with tenderness is common in a high percentage of cases.

Edema of the lids and the conjunctiva, especially the transitional fold, is very frequent. The conjunctiva presents the appearance of a simple purulent conjunctivitis but with little or no formation of pus. Small areas of pseudo-membrane are not infrequent and when removed leave either small white dotted points or some bleeding points. The bulbar conjunctiva becomes edematous early. At this stage, there is some lacrimation and photophobia, but real pain and blepharo-spasm do not appear until the cornea becomes involved.

The percentage of cases in which corneal involvement occurs varies from 50 per cent to 90 per cent. In six to twelve days after the conjunctivitis appears, the cornea becomes involved by the appearance of discrete gray infiltrates that lie in and immediately under the epithelial layer of the cornea. They may be confined to the periphery of the cornea but in a large percentage of cases involve the pupillary area of the cornea directly. These infiltrates are discrete and seldom become complicated by an erosion of the corneal epithelium with resultant staining with fluorescin. The extent of visual impairment depends upon the number of infiltrates and their location.

Clinical Course: The disease is self-limited. In the majority of instances, the conjunctivitis disappears spontaneously in fourteen to eighteen days. The corneal complication may disappear in seven days or may last for many months. The longer they persist the greater the danger of permanent visual impairment.

Laboratory Findings: Scrapings of the conjunctiva show a preponderance of monocytes. Cultures and smears are either negative or show the usual contaminations.

Treatment: There is no specific treatment that has shown a definite influence upon the course of the disease. During the acute stage the eyes should be kept clean with irrigations of boric acid, normal saline, or one to five thousand oxycyanid of mercury. If there is much photophobia, 1 per cent holocaine may be instilled at frequent intervals. Five per cent sulfathiazole ointment has been used, as has 5 per cent solution of sodium sulfathiazole sesquihydrate. For persistent corneal infiltrates, x-ray has seemingly yielded some results.

Period of Infectivity: It is not yet known how long the danger of transmission to others exists. At present for pratical purposes a sufferer from epidemic kerato-conjunctivitis may be allowed to return to work when the active conjunctivitis has disappeared.

Preventive Measures: At present the only preventive measure known is complete isolation of the infected persons. Inasmuch as the disease has been transmitted through medical personnel, the most meticulous asepsis must be insisted upon. Not only must physicians and nurses wash their hands thoroughly with soap and water after each patient, but also eye droppers, solutions, instruments, etc. must be sterilized to prevent infection of non-contaminated persons. The infected individual must be told of the danger of transmission of this disease to others, not only in the plant, but even in the home surroundings. It is suggested that in industrial plants where epidemic kerato-conjunctivitis has made its appearance the following methods of procedure be adopted:

1. In smaller plants with a limited personnel, every individual with a red eye should be stopped at the entrance of the plant and sent direct to the plant physician to determine whether or not epidemic kerato-conjunctivitis is present.

   In larger plants where such a procedure is not possible, supervisors and foremen should be instructed in detail to make rounds immediately when a fresh shift starts, and send any individual with a red eye to the medical office.
2. If the cases are to be treated at the medical department of the plant, a separate room should be set aside for such cases and in that room there must be exercised the most scrupulous asepsis even to washing off the arms of the chairs in which the patients sit. Aside from the aseptic and separate care of the recognized cases of the disease, special cleanliness of the hands of the physician in the general clinic should be maintained, with the use of an effective disinfectant between cases, lest the infection be spread by means of undiagnosed cases, especially those suspected of having foreign bodies in the eye.
3. Every case of epidemic kerato-conjunctivitis should be excluded from the communal facilities of the plant until the inflammation has subsided to the point where the plant physician considers it no longer transmissible.
4. Explicit instructions should be given to every individual regarding the danger of transmission, and emphasizing the decrease in the war effort as a result of the time lost from epidemic kerato-conjunctivitis.
5. The local health authorities should be notified immediately of the existence of individual cases.

* This statement has been prepared jointly by the United States Public Health Service and the Committee on Industrial Ophthalmology of the American Medical Association, for distribution to all physicians.

News Notes From the State Board of Health

Dr. Carl V. Reynolds, State Health Officer, has issued the following statement with regard to the milk situation in North Carolina:

"The recent milk-borne outbreak in the vicinity of Elizabeth City, in which 70 citizens, including soldiers and civilians, became ill with intestinal disorders, furnishes indisputable support of the position taken by the State Board of Health against the pooling of low grade and high grade milk and its distribution under dishonest labels. . . .

"The Public Health control of milk supplies in North Carolina is a function of local units of government, that is, municipalities or counties. The State Board of Health acts in an advisory and consultatory capacity in matters of milk sanitation since there is no legal authority vested in the State Board of Health for the Public Health control of milk. Responsibility for the safety of milk and integrity of labeling and grading of milk rests directly on the shoulders of local officials.

"Since the milk shortage in North Carolina became acute some four months ago, pressure groups—local and national, have endeavored to prevail upon the State Board of Health to recommend that milk regulations be lowered or abrogated whereby low grade, potentially unsafe milk could be legally sold to the public under dishonest labels.

"In considering all aspects of the question, the State Board of Health had hearings and conferences with all groups involved in the milk question—the producing farms, the processing and distributing plants, the Army, the Navy, the U. S. Public Health Service, local and State Health Officers, the Department of Agriculture and others.

"At two official meetings, the State Board of Health refused to lower milk regulations, to recommend the pooling of high and low grade milk, or to abolish the proper labeling and grading of milk and milk products and made the following recommendations:

"'1. Grading and labeling of all milk and milk products **should continue** in accordance with the provisions of your Standard Ordinance.

"'2. **Grade A Pasteurized Milk** and milk products should be maintained as such and in accordance with the provisions of your local milk ordinance, and should **not** be pooled with lower grades of milk.

"'3. In accordance with Sections 8 and 11 of the U. S. Public Health Service Standard Milk Ordinance, lower grades of milk and milk products may be sold during the **emergency provided they are properly labeled in accordance with** the grading and labeling provisions of your local ordinance.'

"The Grange, the Farmers' Federation, and the Blue Ridge Milk Producers Association—representing the milk producing farms have approved the action of the State Board of Health . . .

"There are today in North Carolina certain milk companies receiving and processing known Grade C milk—as shown by survey of the State Board of Health and the U. S. Public Health Service—and selling it as Grade A milk, with or without the knowledge of local milk control officials. One town, namely Chapel Hill, has been threatened with curtailment of sale of milk by a large milk company located in a neighboring city unless the town of Chapel Hill agreed to permit the sale of misbranded milk. The statement made by several milk companies that they cannot keep Grade A milk from being pooled and contaminated with lower grades of milk is absurd and ridiculous. So long as the State Board of Health functions as an advisory and consultatory

body in matters of milk sanitation, it will aggressively oppose the abolishment of grading and labeling of milk, any misbranding thereof, the pooling of Grade A milk with lower grades of milk, or any practice that will endanger the public health . . .

"What is the answer to this milk problem? In view of the intrastate and interstate nature of the present flow of milk, local health departments are apparently unable to cope with the situation adequately. Conflicting milk ordinances in some of the local communities have caused confusion. Loss of personnel in some local health departments has necessarily relaxed vigilance of milk control. Therefore, sufficient legal authority vested in the State Board of Health appears the only answer to the problem and the only means by which epidemics of milk borne outbreaks that are existent, can be forestalled . . .

"May I close by advising the people of North Carolina to ascertain the facts as to their milk supply and be guided accordingly as to its use. We deem it imperative and highly essential that the War Production Board release equipment sufficient in amount to produce a safe milk for the use of its soldiers and civilians."

* * * *

Dr. Carl V. Reynolds, State Health Officer, presided over the meeting of the State and Provincial Health Authorities of North America, held in Washington on March 23. This organization is composed of health officers from all states of the Union and outlying possessions and the provinces of Canada. Dr. Reynolds is the retiring president.

News Notes From the North Carolina Tuberculosis Association

The NTA, through the Committee on Tuberculosis Among Negroes, will again this year make available fellowships in health education at the University of Michigan summer school. They will be open to Negro nurses and educational leaders. Applications should be made to your state association. The fellowship amounts to $200; $100 paid by the NTA, the remainder to be made up between the state and local associations. Write the State Association if you have a likely candidate.

* * * *

To keep tuberculosis control programs in the U.S. constantly adjusted to wartime conditions and to plan for post war control of the disease, a War Emergency Committee has been appointed by the NTA. Dr. J. Burns Amberson, Jr., President of the National Tuberculosis Association is chairman. Committee members are: Dr. Harry S. Mustard, Columbia University; Lt. Col. Esmond R. Long, M.D., in charge of Tuberculosis Section of the Surgeon General, U. S. Army; Dr. Herman E. Hilleboe, in charge of the Tuberculosis Section, U. S. Public Health Service and Dr. Robert G. Patterson, Executive Secretary, Ohio Public Health Association.

* * * *

The 1943 General Assembly enacted a bill to Prevent the Spread of Tuberculosis. This bill reads:

"Section 1. Any person having tuberculosis in the communicable form who, after being instructed by an agent of the county board of health as to precautions necessary to be taken to protect the members of such person's household or the community from becoming infected by tuberculosis communicated by such person, shall wilfully refuse to follow such instructions shall be guilty of a misdemeanor, and, upon conviction thereof, shall be imprisoned in the Prison Department of the North Carolina Sanatorium for a period of 60 days for the first offense, and for a period of 6 months for any subsequent offense.

Section 2. All laws and clauses of laws in conflict with this act are hereby repealed.

Section 3. This Act shall be in full force and effect from and after its ratification."

This Act was ratified on March 1 and should be of great assistance to county health departments and sanatoria as well as tuberculosis associations and committees.

* * * *

The Board of Directors of the Charlotte Woman's Club, which sponsors the tuberculosis work of Mecklenburg county, authorized its Tuberculosis Committee to employ a full time trained executive secretary to carry on its work. Mrs. M. H. Courtney of Charlotte is Chairman of this Committee.

News Notes From the University of North Carolina

The School of Medicine began a new year on March 22, 1943; the first-year class has 51 members and the second-year class has 41 members, making a total enrollment of 92 for the entire school.

* * * *

Dr. H. W. Brown, Dean of the School of Public Health of the University of North Carolina, recently completed a lecture tour of thirty-five medical schools. He lectured several times at each school on various tropical diseases. The lectures were part of a governmental program to educate medical students and interns, who will soon be in the armed services, in tropical medicine. The program was arranged at the request of Army Officials and was sponsored by the National Research Council with the support of the John and Mary R. Markle Foundation.

* * * *

Miss Ruth W. Hay, Professor of Public Health Nursing, School of Public Health, University of North Carolina, attended the Industrial Hygiene Institute for Nurses held at the National Institute of Health at Bethesda, Maryland from March 1-10, 1943. This institute was arranged for public health nursing consultants of the U. S. Public Health Service District offices, industrial nursing consultants of State Health Departments and a few prominent persons in the public health nursing field. The lectures brought out many pertinent facts on diseases and prevention of diseases which are prevalent in war industries.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

The Bowman Gray School of Medicine began its first session as a complete four year school on March 22, 1943, with 32 students in the first senior class, 31 juniors, 46 sophomores, and 51 freshmen, making a total enrollment of 160.

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Dr. C. C. Carpenter, Dean, attended a conference on the proposed Army-Navy Training Program for medical students in Atlanta, Georgia, on March 15, 1943.

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Dr. Wingate M. Johnson, Professor of Clinical Medicine, attended the Conference on Planning for War and Post War Medical Services in New York on March 15 and a meeting of the Trustees of the National Physicians' Committee on March 16.

Dr. Tinsley R. Harrison, Professor of Medicine, made several talks on Heart Disease before the Seventh Annual Meeting of the New Orleans Graduate Medical Assembly in New Orleans March 15-18.

* * * *

Dr. George Harrell, Assistant Professor of Medicine, has recently returned from a visit to Columbia, Cornell, Yale, the University of Pennsylvania, the Rockefeller Institute, and the Phipps Institute. This trip was made at the suggestion of the Research Committee of the National Tuberculosis Association for the purpose of showing the research departments of these institutions the work that he has been doing on the application of the lipid fractions of the tubercle bacillus to human beings. This project will be continued, with the assistance of the National Tuberculosis Association and other research workers interested in tuberculosis.

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Dr. Eugene R. Kellersberger, Secretary of the American Mission to Lepers, will lecture at the medical school on Monday afternoon, May 3, at 3:30 p.m.

Eighth District Medical Society

The spring meeting of the Eighth District Medical Society will be held in the amphitheatre of the Bowman Gray School of Medicine in Winston-Salem on Thursday, April 22. The tentative program for the afternoon session, which will convene at 2:30 p.m., is as follows:

Present Day Status of the Management of Prostatism—Fred K. Garvey, M.D., Bowman Gray School of Medicine, Winston-Salem

Tropical Diseases as a Post-War Problem in North Carolina—Donald S. Martin, M.D., Duke University, Durham

Coronary Thrombosis in Young Soldiers—Lt. John Reece, M.C., Fort Bragg

Acute Hemorrhagic Nephritis in Children—Samuel F. Ravenel, M.D., Greensboro

The Use of Radioactive Salts and the Neutron Ray in Medicine—J. P. Rousseau, M.D., Bowman Gray School of Medicine, Winston-Salem

Clinico-Pathological Conference—Tinsley R. Harrison, M.D., and Robert P. Morehead, M.D., Bowman Gray School of Medicine, Winston-Salem

A dinner meeting will be held at 7 p.m. at the Robert E. Lee Hotel. Dr. Frederic M. Hanes, Professor of Medicine at Duke University, will speak on "Medical Education and Practice During and After the War".

Catawba Valley Medical Society

The Catawba Valley Medical Society met in Lincolnton on March 9 at 7:30 p.m. The following program was presented:

Some Preventive Aspects of Mental Hygiene—Dr. J. W. Vernon, Morganton

Sulfonamides, Their Toxicity and Uses Against Various Organisms—Dr. Yates Palmer, Valdese

Allergy—Dr. G. M. Billings, Morganton

A motion picture on Peptic Ulcer, produced at the Lahey Clinic and shown through the courtesy of John Wyeth and Brother

Case Reports

Forsyth County Medical Society

The Forsyth County Medical Society held its March meeting in Winston-Salem on March 9. Case reports were given by Dr. E. S. Avery and Dr. J. F. Belton, and Dr. H. H. Menzies presented a paper entitled "What Is New".

Regional Meeting of the American College of Physicians

The Regional Meeting of the American College of Physicians for the Middle Atlantic States (including North Carolina) will be held in Washington, D. C. on April 24. The following program will be presented:

Morning Session

10:00 A. M. — 12:30 P. M.
Walter Reed General Hospital
Red Cross Building, Washington, D. C.

Introduction

Shelley U. Marietta, F.A.C.P.
Brigadier General, (MC), U.S.A.
Commanding Officer, Walter Reed General Hospital

Presiding Officer

Wallace M. Yater, F.A.C.P.
General Chairman and Governor for the District of Columbia

1. "Periarteritis Nodosa: Certain Clinical and Roentgenologic Features."
   A. O. Hampton, Major, (MC), U.S.A., Chief of X-Ray Department, and Louis Krause, F.A.C.P., Major, (MC), U.S.A., Assistant Chief, Medical Service, Walter Reed General Hospital.
2. "Clinical Diagnosis of Lumbar Intervertebral Disc Lesions."
   R. Glenwood Spurling, Lt. Col. (MC), U.S.A., Assistant Chief of Surgical Service and Chief of Neurosurgical Section, Walter Reed General Hospital.
3. "Contrast Visualization in the Diagnosis of Intrathoracic Disease."
   George P. Robb, F.A.C.P., Major, (MC), U.S.A., Chief of Cardiovascular Section, Walter Reed General Hospital.
4. "Clinical Report on Primary Atypical Pneumonia."
   Dale C. Stahle, Capt., (MC), U.S.A., Executive Assistant, Medical Service, Walter Reed General Hospital.
5. "Histaminic Cephalalgia."
   Louis E. Lieder, Lt. Col., (MC), U.S.A., Chief of Allergy Clinic, Walter Reed General Hospital.

INTERMISSION

Presiding Officer

Wetherbee Fort, F.A.C.P.
Acting Governor for Maryland

6. "Simplification of Treatment of Diabetes and Diabetic Coma."
   Lazarus L. Pennock, Capt., (MC), U.S.A., Allergy and Diabetes Section, Walter Reed General Hospital.
7. "Malaria in the Army."
   Thomas T. Mackie, F.A.C.P., Lt. Col., (MC), U.S.A., Chief of Division of Tropical Medicine and Parasitology, Army Medical School.
8. "The Typhus Problem."
   Harry Plotz, Col., (MC), U.S.A., Chief of Division of Virus and Rikettsial Diseases, Army Medical School.
9. "Contact Dermatitis."
   Zeno N. Korth, Major, (MC), U.S.A., Chief Dermatologist, Walter Reed General Hospital.

Afternoon Session

2:30 P. M. — 5:00 P. M.
U. S. Naval Hospital
National Naval Medical Center
Bethesda, Md.

Introduction

Charles W. O. Bunker, F.A.C.S.
Rear Admiral, (MC), U.S.N.
Commanding Officer, U. S. Naval
Medical Center

Presiding Officer

J. Edwin Wood, Jr., F.A.C.P.
Acting Governor for Virginia

1. "An Evaluation of the Surgical Treatment of Arterial Hypertension."
   Winchell McKendree Craig, Capt., (MC), U.S.N.R., Chief of the Neurosurgical Service, U. S. Naval Hospital.
2. "Coronary Heart Disease."
   Arthur M. Master, F.A.C.P., Comdr., (MC), U.S.N.R., Consulting Cardiologist, U. S. Naval Medical Center.
3. "Experiments on Underwater Concussion."
   J. C. Greaves, Capt., (MC), U.S.N., Executive Officer, U. S. Naval Medical School.
4. "Practical Considerations in the Use of Blood Derivatives."
   L. R. Newhouser, F.A.C.P., Comdr., (MC), U.S.N., Officer-in-Charge, Blood Plasma Unit, U. S. Naval Medical School.

INTERMISSION

Presiding Officer

Paul F. Whitaker, F.A.C.P.
Governor for North Carolina

5. "The Use of Sulfadiazine in the Treatment of Meningococcus Carriers."
   F. S. Cheever, Lt., (MC), U.S.N.R., Department of Epidemiology, U. S. Naval Medical School.
6. "The Importance of Sub-groups and the Rh Factor in Blood Transfusions."
   J. J. Engelfried, Lt., (MC), U.S.N.R., Department of Clinical Chemistry, U. S. Naval Medical School.

Demonstrations:

"The Electron Microscope."
R. H. Draeger, Comdr., (MC), U.S.N., Executive Officer, Naval Medical Research Institute.

"Blood Derivatives."
L. R. Newhouser, Comdr., (MC), U.S.N.

"Blood Grouping."
J. J. Engelfried, Lt., (MC), U.S.N.R.

In the evening a dinner will be held at the Statler Hotel, with Dr Wallace M. Yater acting as toastmaster. Selected addresses will be given by distinguished guests.

International College of Surgeons To Meet in June

The Fourth International Assembly of the International College of Surgeons will be held on June 14, 15 and 16 at the Waldorf Astoria Hotel in New York City, it is announced by Dr. Fred H. Albee, International President. The program will be devoted to war surgery and rehabilitation.

Delegations made up of prominent surgeons from the United Nations in addition to those from other countries are expected to attend. The United Nations representatives will give outstanding examples of the progress being made in war surgery and rehabilitation under battle conditions by their respective countries.

Eminent surgeons in Government military and civilian executive offices have voiced approval of the Assembly, which also has the cooperation of the Latin American Chapters of the International College of Surgeons.

National Conference on Planning For War and Post War Medical Services

The National Conference on Planning for War and Post War Medical Services was held under the auspices of the Carlos Finlay Institute of the Americas in New York City on March 15. The following program was presented:

Morning Session

James E. Paullin, M.D., Presiding
President, American College of Physicians
and President-Elect, American Medical Association

WAR AND THE MIGRATION OF TROPICAL DISEASES—Thomas T. Mackie, M.D., Lt. Col. Medical Corps and Executive Officer, Tropical and Military Medicine, Army Medical School, Washington, D. C.

EPIDEMIOLOGY OF INFLUENZA—Thomas Francis, Jr., M.D., Prof. Dept. of Epidemiology, University of Michigan School of Public Health, Ann Arbor, Mich.

MALARIA—A WORLD MENACE—Lowell T. Coggeshall, M.D., University of Michigan School of Public Health, Ann Arbor, Mich.

NUTRITIONAL DISEASES AS A POSTWAR PROBLEM—John B. Youmans. M.D., Assoc. Prof. Med. Vanderbilt University School of Medicine, Vanderbilt University Hospital, Nashville, Tenn.

Afternoon Session

Brigadier General Fred Rankin,
M.C. U.S.A., Presiding
President, American Medical Association

POSTWAR NEEDS FOR MEDICAL AND OTHER TRAINED PERSONNEL — Edward C. Elliott, Ph.D., LL.D., Pres. Purdue University, Manpower Commission, Washington, D. C.

POSTWAR CHANNELING OF DRUGS AND MEDICAL SUPPLIES—C. F. Shook, M.D., Col. Medical Corps, U. S. Army, Washington, D. C.

TRENDS IN SCIENTIFIC RESEARCH — A. R. Dochez, Rockefeller Institute for Medical Research.

Evening Session

Dinner

INTRODUCTION OF DISTINGUISHED GUESTS —Mr. John G. Searle, President of American Drug Manufacturers Association, introducing Mr. Basil O'Connor, Toastmaster

TOASTMASTER—Mr. Basil O'Connor, President of the Carlos Finlay Institute of the Americas and President of the National Foundation for Infantile Paralysis, Inc.

THE HEALTH PROBLEMS OF THE AMERICAS —Mr. Nelson A. Rockefeller, Co-ordinator of Inter-American Affairs, Washington, D. C.

HEALTH—A WORLD PROBLEM—Mr. Frederick P. Keppel, Director Equitable Life Assurance Society of U. S. Guaranty Trust Co., New York, N.Y.

THE PLACE OF THE AMERICAN RED CROSS IN MEDICAL REHABILITATION—Mr. Norman Davis, American Red Cross, Washington, D. C.

AMERICAN MEDICINE'S CONTRIBUTION TO THE POSTWAR WORLD—Morris Fishbein, M.D., Editor of the Journal of the American Medical Association, Chicago, Ill.

News Note

Dr. Raymond S. Crispell has recently been promoted from Lieutenant-Commander to Commander in the Medical Corps of the U. S. Navy. Commander Crispell has been on active duty in the U. S. Navy with a leave of absence from the Duke University Medical School since June 15, 1941. He is serving as the head of Neuropsychiatry of the Medical Department of the U. S. Naval Air Training Center at Pensacola and as Professor of Neuropsychiatry at the School of Aviation Medicine, the only Naval school qualifying Naval Medical Officers as medical examiners in aviation medicine and as flight surgeons.

AUXILIARY

PLANS FOR STATE CONVENTION

The Wake County Auxiliary extends to each and every member of the Auxiliary to the Medical Society of the State of North Carolina a most cordial invitation to attend the Twenty-First Annual Session of the State Auxiliary in Raleigh on May 10, 11, and 12.

The members of the Wake County Auxiliary wish every lady who comes to the Convention to know that we are very happy to see her and to renew our friendship. However, because of OPA regulations in regard to gas and food rationing, it was deemed necessary to limit our activities to one day of business. We have, therefore, arranged our program for Tuesday, May 11, and hope that it will be a happy day for all those who attend. May the wives of the doctors of North Carolina demonstrate to the public their willingness to aid the government in its efforts to hasten the end of the war, and at the same time enjoy the true fellowship which is possible only in sharing experiences together.

A warm welcome awaits every one who may attend.

Tentative plans for the Convention, May 10-12, follow:

TWENTY-FIRST ANNUAL SESSION OF THE AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Officers

President.....Mrs. R. A. Moore, Winston-Salem
President-Elect.....Mrs. K. B. Pace, Greenville
First Vice President and Chairman of Organization.....Mrs. Sidney Smith, Raleigh
Second Vice President and Chairman of McCain Bed.....Mrs. Charles Gay, Charlotte
Third Vice President and Chairman of Stevens Bed.....Mrs. J. L. Reeves, Canton
Fourth Vice President and Chairman of Loan Fund.....Mrs. A. H. Elliot, Wilmington
Chairman of Past Presidents —Mrs. P. P. McCain, Sanatorium
Corresponding Secretary Mrs. R. L. McMillan, Winston-Salem
Recording Secretary..Mrs. James Vernon, Morganton
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Nominations.....Mrs. J. Buren Sidbury, Wilmington

PROGRAM

HEADQUARTERS: Sir Walter Hotel

Monday, May 10

1:00-6:00 p.m.—Registration Sir Walter Hotel

Tuesday, May 11

10:30 a.m.—Executive Board Meeting, Carolina Hotel
*1:00 p.m.—Luncheon, Carolina Hotel (Fee $1.25)
2:00 p.m.—Annual State Meeting, Carolina Hotel
Mrs. R. A. Moore, Winston-Salem, President, presiding
7:00 p.m.—Joint Banquet With Medical Society
10:00 p.m.—Annual Medical Society Ball

* Please register for this event.

PROGRAM

Annual State Meeting
Tuesday, May 11, 1943, at 2 p.m.
Mrs. R. A. Moore, President, presiding

Call to Order, Mrs. R. A. Moore.....Winston-Salem

Invocation, Mrs. Vernon Lassiter.....Winston-Salem

Memorial Service

Reports of Officers:

President, Mrs. Moore

First Vice President and State Chairman of Organization, Mrs. Sidney Smith.....Raleigh

Second Vice President and Chairman of McCain Bed, Mrs. Charles Gay.....Charlotte

Third Vice President and Chairman of Stevens Bed, Mrs. J. L. Reeves.....Canton

Fourth Vice President and Chairman of Student Loan Fund
Mrs. A. H. Elliott.....Wilmington

Treasurer, Mrs. E. C. Judd.....Raleigh

Chairman of Past Presidents,
Mrs. P. P. McCain.....Sanatorium

Chairman of Advisory Board,
Dr. P. P. McCain.....Sanatorium

Recording Secretary,
Mrs. R. L. McMillan.....Winston-Salem

Introduction of Chairmen of Standing Committees

Introduction of Presidents of County Medical Auxiliaries

Reports:

Councilor for Southern Medical Auxiliary
Mrs. Clyde R. Hedrick.....Lenoir

Delegate to National Auxiliary
Mrs. R. L. McMillan.....Winston-Salem

Courtesy Committee

Greetings from the Medical Society of the State of North Carolina,
Dr. Donnell B. Cobb, President.....Goldsboro

Unfinished Business

New Business

Report of the Nominating Committee,
Mrs. J. Buren Sidbury, Chairman.....Wilmington

Election and Installation of Officers,
Mrs. P. P. McCain, Presiding

Inaugural Remarks, Mrs. K. B. Pace.....Greenville

Announcements

Adjournment

Rules and Procedure

1. Register on arrival. Present 1942-1943 membership card or pay $1.00 registration fee, and receive badge.
2. Wear badge to all functions.
3. Please register promptly for luncheon.
4. Members of the Hospitality Committee will be in the lobby of Sir Walter Hotel and the Carolina Hotel to greet incoming guests and give information.
5. Members of the Guide Committee will be in the lobby of the Sir Water Hotel to assist guests in finding their way to the Carolina Hotel.

Auxiliary General Chairman of Convention
Mrs. Verne S. Caviness

Convention Committees

Hospitality: Mrs. C. E. Flowers, Chairman
Mrs. G. S. Cooper, Co-Chairman, Sir Walter Hotel
Mrs. A. C. Campbell, Co-Chairman, Carolina Hotel
Mrs. Hubert Royster, Mrs. J. R. Rogers, Mrs. Z. M. Caviness, Mrs. G. S. Coleman, Mrs. J. B. Wright, Mrs. C. B. Wilkerson, Mrs. James Watson, Mrs. H. A. Thompson, Mrs. Hubert Haywood, Mrs. J. S. Buffaloe, Mrs. J. M. Judd, Mrs. T. D. Kitchin, Mrs. G. S. Barbee, Mrs. O. L. Ray, Mrs. Paul Neal, Mrs. A. S. Root, Mrs. Louis West, Mrs. R. W. Wilkerson, Jr., Mrs. A. R. Weathers.

Luncheon: Mrs. C. P. Eldridge, Chairman
Mrs. Frank Powers, Co-Chairman
Mrs. V. M. Hicks, Mrs. M. D. Hill, Mrs. H. G. Turner, Mrs. C. R. Bugg, Mrs. A. C. Bulla, Mrs. B. J. Lawrence, Mrs. W. S. Cozart, Mrs. George Mackie, Mrs. J. R. Hester, Mrs. R. P. Noble, Mrs. J. S. Mitchiner.

Board Meeting: Mrs. P. G. Fox, Chairman
Mrs. I. M. Procter, Mrs. J. S. Crumpler, Mrs. O. S. Goodwin, Mrs. O. E. Finch.

Annual Meeting: Mrs. Sidney Smith, Chairman
Mrs. M. R. Gibson, Co-Chairman
Mrs. R. L. McGee, Mrs. Frank Yarborough, Mrs. C. F. Williams, Mrs. C. L. Royster, Mrs. J. M. Hitch, Mrs. C. C. Jones, Mrs. Glenn Judd, Mrs. Kemp Neal, Mrs. Earl Brian, Mrs. W. W. Strickland, Mrs. A. S. Oliver.

Registration: Mrs. W. G. Cheve, Chairman
Mrs. R. E. Fox, Co-Chairman
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Guides: Mrs. W. T. Ward, Chairman
Mrs. A. C. Broughton, Mrs. Roger Wall, Mrs. K. L. Dickinson, Mrs. R. T. Stimpson, Mrs. W. B. Dewar, Mrs. N. H. McLeod, Mrs. J. J. Combs, Mrs. J. P. Hunter, Mrs. M. J. Carson, Mrs. Robert Young.

Employers should recognize that workers who have old, arrested and clinically non-significant tuberculosis scars in their lungs present almost as little risk as the non-tuberculous workers. In some instances, old experienced key workers have been discharged following the disclosure of such lung scars by plant x-ray surveys. This practice, we are all agreed is unsound—medically and economically wasteful.

Employees who have fallen ill with tuberculosis and are successfully treated should be returned to their old jobs under medical supervision when those jobs are suitable and when medical opinion finds the employee capable of full-time work. Louis E. Stiltzbach, M.D., The Milbank Quarterly, Jan., 1943.

BOOK REVIEWS

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon, Barnes, Children's, and Jewish Hospitals; and H. Earle Conwell, M.D., F.A.C.S., Orthopaedic Surgeon to the Tennessee Coal, Iron, and Railroad Company; Chairman of the Committee on Fractures and Traumatic Surgery of the American Academy of Orthopaedic Surgeons. Edition 3. 1303 pages. Price, $12.50. St. Louis: The C. V. Mosby Company, 1942.

The third edition by these well known and able authors covers the subjects of fractures, sprains and dislocations thoroughly. The subject matter is presented in a practical manner. Individual opinions are expressed concerning certain phases of treatment, but various other methods in vogue are also recognized.

The volume is well illustrated with numerous plates. The chapters on first aid and automobile accidents are particularly worth while. The chapter on complications of fractures is thorough and gives a very definite idea of the conditions we may encounter in the treatment of fractures.

This book is not just another volume on the familiar subjects. It is rather comprehensive for the student, but it is adequate for practitioners interested in the subject, including the specialist. It presents every type of injury or disability one is likely to encounter in this type of work.

The Principles and Practice of War Surgery. With Reference to the Biological Method of the Treatment of War Wounds and Fractures. By J. Trueta, M.D., Formerly Director of Surgery, General Hospital of Calalonia, University of Barcelona; Acting Surgeon-in-Charge Accident Service, Radcliffe Infirmary, Oxford, England. With an Introduction by O. H. Wangensteen. 441 pp. with 144 text illustrations. St. Louis: The C. V. Mosby Co., 1943.

The sugical treatment of wounds and fractures has received its greatest impetus from studies made on war casualties. The present conflict has already revolutionized many of our concepts of traumatic surgery and allowed trial of new procedures with remarkable success. During the Spanish uprising which ushered in the present war, Dr. Trueta first applied his methods, which by now have received world-wide acclaim. In this book he describes in detail from a novel and refreshing viewpoint the principles and practice of war surgery. He elaborates the five essentials of treatment: (1) promptness, (2) cleansing of the wound, (3) excision of the wound, (4) provision of drainage and (5) immobilization in a plaster-of-Paris cast. These five essentials comprise the so-called Trueta method, which has already led to almost unbelievable improvement in the surgery of war casualties. Not only should this interestingly written book be read by every military surgeon and by those treating war casualties, but every practicing surgeon should become acquainted with the views and methods outlined herein, for they include surgical principles applicable in everyday practice.

Clinical Diagnosis by Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Late Professor of Clinical Pathology, University of Colorado, School of Medicine; and Arthur Hawley Sanford, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation) Head of Division on Clinical Laboratories, Mayo Clinic. Tenth Edition, Thoroughly Revised. 911 pages with 380 illustrations, 32 in colors. Price, $6.00. Philadelphia and London: W. B. Saunders Company, 1943.

The appearance of this classic text in its tenth edition is eloquent evidence of its well deserved popularity. The present edition has kept pace with all the advances in the field and fills admirably the needs of teachers, students, medical technologists, and practicing physicians. Among the new procedures appearing in the present volume may be mentioned: fluorescent staining of tubercle bacilli; the determination of sulfonamides and sulfones and their identification in urine; the Quick prothrombin test; anaerobic culture of bacteria; and phosphatase determinations. Porphyrinuria, rickettsial and fungus diseases, hemoconcentration, the Rh factor, and other subjects of interest to the clinical pathologist are discussed in adequate detail. There are numerous well-chosen illustrations. The book should not fail to maintain the popularity of the earlier editions and can be recommended without reservation.

Endocrine Therapy in General Practice. By Elmer L. Sevringhaus, M.D., Professor of Medicine, University of Wisconsin. Edition 4. 243 pages, with 49 illustrations. Price, $2.75. Chicago: The Year Book Publishers, Inc., 1943.

This is the fourth annual edition of this brief compendium on endocrinology. It summarizes with great brevity the general principles of endocrine therapy. The views expressed are sound and include the most pertinent aspects of the subject. The book can be recommended to the busy practitioner who wishes a brief summary of the subject. The only criticism which may be offered is that over-simplification of an involved subject may lead to an uncritical use of the already much abused endocrines, but to those possessing a knowledge of the fundamentals of the subject, this criticism will not apply.

An Introduction to Biophysics. By Otto Stuhlman, Jr., Ph.D., Professor of Physics, University of North Carolina. 375 pages. Price, $4.00. New York: John Wiley & Sons, Inc., 1943.

This book is intended as a text for students whose primary interests lie in the biological sciences. In its eight concise chapters it considers x-rays, radioactivity, the eye, emission and absorption of biophysically active light, surface action and membranes, nerve conduction, auditory biophysics, and the microscope. The Coolidge x-ray tube, the photometer, the electron microscope, the encephalograph and similar complex apparatus which have acquired a fundamental importance in medicine are described from the standpoint of the physical principles involved in their construction and use. The book is clearly written and should serve admirably its intended purpose of giving the medical reader a knowledge of the fundamental physical principles which he encounters daily.

Fundamentals of Immunology. By William C. Boyd, Ph.D., Associate Professor of Biochemistry, Boston University School of Medicine; Associate Member, Evans Memorial, Massachusetts Memorial Hospitals, Boston. 446 pages with 45 illustrations. Price, $5.50. New York: Interscience Publishers, Inc., 1943.

This book unquestionably contributes much to the field of immunology and serology. However, much of its content is a bit too "chemical" and lacking in practical application for the average medical student. It presents an excellent chemical approach to immunology, and is a welcomed addition to a subject that is fundamentally chemical, and much of which is not well understood. The excellent bibliography adds greatly to the value of the book.

Although it is difficult to visualize this volume as a textbook for medical students, it should certainly be read and studied by everyone interested in this subject. On the whole it fills the gap between applied immunology and purely fundamental immunology very well.

Creatine and Creatinine Metabolism. By Howard H. Beard, Ph.D., Professor of Biochemistry, Louisiana State University. 376 pages. Price, $4.00. Brooklyn, N. Y.: Chemical Publishing Co., 1942.

Creatine and its anhydride, creatinine, play a fundamental role in the body economy and are intimately associated with various metabolic processes in the body. Their action in the organism is closely linked with carbohydrate metabolism, muscular contraction, nutritional muscular dystrophy, the myopathies and cardiac activity. Dr. Beard in the present monograph has clearly summarized the vast field of biochemistry, dealing with these subjects as they relate to creatine-creatinine metabolism. Although probably beyond the field of interest of the general practitioner, this monograph should prove of interest to biochemists and other investigators in allied fields of medicine.

Textbook of Biochemistry. By Benjamin Harrow, Ph.D., Professor of Chemistry, City College, College of the City of New York. Third Edition, Revised. 537 pages with 118 illustrations. Price, $4.00. Philadelphia and London: W. B. Saunders Company, 1943.

Biochemistry has expanded tremendously during the last two decades. Even the professional chemist cannot be expected to cover the entire field of biochemical interest. It becomes more and more necessary, therefore, in a textbook intended for medical students to limit the matters chosen for discussion and select those of greatest medical importance. Dr. Harrow has succeeded admirably in this task. In a relatively brief space he has accumulated the more essential matters of biochemistry. The style is clear and simple. Illustrations aid in elucidating the text. Figure 95 (p. 458), used to illustrate presumably an endocrine disturbance, is probably a photograph of an achondroplastic dwarf and hence not appropriate for its intended purpose. The book can be highly recommended for students and physicians who wish to acquire a knowledge of the fundamentals of biochemistry, upon which so many concepts of modern medicine are founded.

Military Surgical Manuals Volume V—Burns, Shock, Wound Healing and Vascular Injuries. Prepared under the Auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. 272 pages with 82 illustrations. Price, $2.50. Philadelphia and London: W. B. Saunders Company, 1943.

This brief summary is presented in a very clear, orderly, and concise outline form. It covers all of the modern concepts associated with burns, shock, wound healing and vascular injuries. Discussions of etiology, pathology, and pathologic physiology are all handled in a splendid manner.

It affords to the reader a very valuable ready reference. For remaining concise and yet thorough and for co-ordinating so well many ideas on many topics the authors are to be sincerely congratulated.

Nasal Medication: A Practical Guide. By Noah D. Fabricant, M.D., M.S., Associate in Laryngology, Rhinology and Otology, University of Illinois College of Medicine. Price, $2.50. 122 pages, with 20 illustrations. Baltimore: The Williams and Wilkins Company, 1942.

In this small volume the author has achieved his purpose of providing a practical guide and a reference work on nasal medication for the general practitioner, pediatrician and rhinologist. Each of the ten chapters is well written, and the bibliography is extensive.

Special stress has rightfully been placed on the physiology and histopathology of the mucous membranes of the nose and nasal sinuses.

This book is strongly recommended to all physicians employing nasal medications.

The Answer Is . . . Your Nerves. By Arnold S. Jackson, M.D., F.A.C.S., with a chapter by Rev. Edwin O. Kennedy. 197 pages, illustrated. Price, $2.00. Madison, Wisconsin: Jackson Publications, 1942.

The author of this book is a surgeon who early recognized that many of the patients who came to him for relief from symptoms did not need surgery, but understanding and sympathetic advice. Because he realized that it takes more time than the average doctor has to explain the complaints that he hears over and over from his "nervous" patients, Dr. Jackson conceived the idea of writing in simple language the explanations and the advice oftenest needed. He has done a good job of it. The book is by no means intended to be a treatise on the psychoneuroses or on psychotherapy; but it is sound and safe to put into the hands of one's patients, calling attention to the appropriate chapters.

It should be emphasized, however, that no book can take the place of a sympathetic study of each patient as an individual, and of making each patient think one is interested in **him.** There is the danger that the physician may rush too hastily through the history and physical examination and pass the book to the patient with instructions to read it for himself. And there is the additional danger, which Dr. Jackson probably realizes, that the patient may read other chapters and develop new ailments. A careful reading of the book leaves this reviewer with the impression that it is as free from this danger as such a book could be, and that it may well be used as a supplement to the physician's own efforts.

Family Treasures. By David D. Whitney, Ph.D., Professor of Zoology, University of Nebraska. 299 pages. Price, $3.50. Lancaster, Pennsylvania: The Jacques Cattell Press, 1942.

The latest of the "Humanizing Science" series is a book on heredity for popular consumption. Dr. Whitney discusses the inheritance of "normal" traits that run in families, such as facial characteristics, hair patterns, etc. The presentation is largely by photographs, more than two hundred being used, which serve to trace certain visible characteristics through several generations of various families. As the author admits, the exact mechanism of inheritance is unknown in many of the traits discussed. The author expresses the hope that this collection will stimulate further study on some of the characteristics described.

The book is written in a simple and interesting style, and may be understood by persons with no special training in science. Statistical treatment of data is avoided and no attempt is made to teach genetics as a science. Such genetic principles as are casually included are sound, however. This book is recommended for the popular audience, but has little medical interest.

There Have Been Rumors That Pablum Is Off The Market

Pabena, the new Pablum-like precooked oat cereal, does not replace Pablum. Pabena is now being marketed in addition to Pablum.

Pabena offers substantially all of the nutritional qualities of Pablum and all of its advantages of ease of preparation, convenience and economy. The base of Pabena is oatmeal (85%) which gives it a fine flavor and offers variety to the diet.

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Mead Johnson & Company, Evansville, Ind., U.S.A.

New Sulfonamide Preparation for Intranasal Use Announced by Squibb

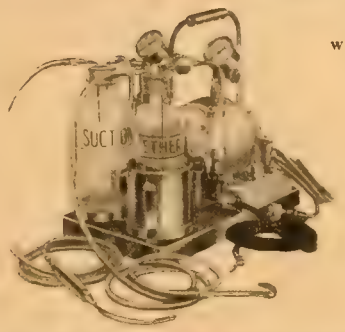
"Sulmefrin" is the name of a new preparation which E. R. Squibb & Sons has just released for intranasal use in the treatment of acute and chronic sinusitis and infections secondary to the common cold. The active ingredients of the new preparation are stabilized sodium sulfathiazole and sesquihydrate and a vasoconstrictor, dl-desoxyephedrine.

Sulmefrin appears as a clear, aqueous, purplish pink liquid, with a slightly aromatic pleasant odor. It has a pH of about 9.0. It is relatively stable to air, light, oxygen and heat. Applied to the nasal mucosa it is practically non-irritating to the great majority of patients. Repeated tests under various conditions upon the nasal mucosa of rabbits have indicated that Sulmefrin had no more inhibitory action upon ciliary motility than a control solution of physiologic sodium chloride.

Sulmefrin may be administered by spray or drops, 5 to 10 minims into each nostril, two to four times daily; or by tamponage, 20 minims on each pack, applied for 15 to 30 minutes once a day.

Sulmefrin has undergone an extensive clinical study by qualified physicians over a period of many months. These studies indicate it to be a product of great value for the intranasal treatment of chronic sinusitis and upper respiratory infections.

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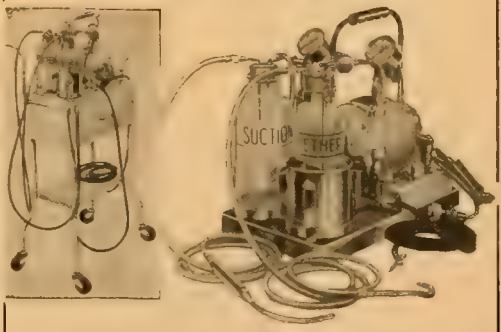
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VOL. 4 MAY, 1943 NO. 5

GOLD THERAPY IN RHEUMATOID ARTHRITIS

HARRY WINKLER, M.D.

CHARLOTTE

Any new therapeutic agent advocated for the treatment of a chronically progressive disease that has resisted all previous attempts at solution is bound to be subjected to a great deal of criticism. Yet, critics of such a remedy which may possibly be classified as dangerous in the light of our experience should be prepared to offer a better aid to the patients who are turned away from many a doctor without hope. It was Osler who said, "When I see an arthritic come in the front door, I want to go out the back one."

Rheumatoid arthritis is of unknown etiology. It may be infectious in origin, but if so, the infective agent is still unknown. Its course of steadily progressive deformity, ankylosis, invalidism, and permanent disability continues to challenge the best medical thought for its cure. The remedies that have been employed are legion. No single measure has yet stood the test of time and experience. In our own experience we have tried vaccine therapy, bee venom, chaulmugra oil, salicylates, sulfur therapy, fever therapy, and many other remedies. The search for a specific curative agent goes on. The modes of treatment are still varied. At each meeting of the American Rheumatism Association the numerous therapies presented bear witness to the fact that no agent has yet been found that will cure this disease.

Moellgaard[1], Feldt[2], and Forestier[3] in about 1928 began some experiments with the use of gold in tuberculosis. Forestier believed that this agent might be of value in chronic rheumatoid and infectious arthritis. He has treated hundreds of cases by this method, and has announced that, when properly administered, gold gives better results in this disease than any method of treatment previously employed in France.

Hartfall and his colleagues[4] employed chrysotherapy in the treatment of 750 cases of rheumatoid arthritis in England. They concluded that this is the best single form of treatment of this disease. They further stated that, seen in its early stages, the disease is curable by this means, and that few cases did not receive some benefit. There have been numerous series of cases reported by American investigators, almost all of whom obtained good results in some of the cases. Few reported no success at all. Several deaths following chrysotherapy have been reported.

In the last published Review of Rheumatism and Arthritis, Cecil, of New York, states that chrysotherapy is an important advance[5]. He considers gold a dangerous agent, but says that in the hands of an experienced therapist it can be used with considerable benefit. The editors of this review

1. Moellgaard, H., in Proc. Roy. Soc. Med. 20:787, 1927.
2. Feldt, A.: Chemotherapeutische Versuche mit Gold, Klin. Wchnschr. 6:1136-9 (June 11) 1927.
3. Forestier, J.: Rheumatoid Arthritis and Its Treatment by Gold Salts; Results of 6 Years' Experience, J. Lab. & Clin. Med. 20:827-40 (May) 1935.
4. Hartfall, S. J., et al: (a) Gold Therapy of Rheumatoid Arthritis, Lancet 2:8-11 (July 6) 1935; (b) Further Observations on Gold Treatment of Rheumatoid Arthritis, Lancet 1:1459-62 (June 27) 1936; (c) Gold Treatment of Arthritis; Review of 900 Cases, Lancet 2:784 (Oct. 2) 1937; (d) Treatment of Rheumatoid Arthritis With New Gold Salt, Lancet 2:1410-12 (Dec. 17) 1938.
5. Cecil, R. L. in Hench, P. S. and others: Review of American and English Literature on Arthritis for 1940, Ann. Int. Med. 15:1002-1108 (Dec.) 1941.

feel that no final evaluation of chrysotherapy is yet possible, but state that it has a better chance of survival than either vaccine or sulfur therapy.

In a recent personal interview with Dr. M. H. Dawson and Dr. Ralph Boots of the Arthritis Clinic at the Presbyterian Hospital of the Columbia Medical Center in New York, I was advised that at their clinic, as soon as the diagnosis of rheumatoid arthritis is made, gold therapy is started. They plan to report on their results in a series of 440 cases soon, and are extremely enthusiastic about the use of gold. Dr. Dawson states that no other agent has produced results such as he has seen in these cases.

The manner of action of gold in arthritis is not known. It is excreted through the kidneys and intestinal tract and possibly through the bronchial mucosa. Nephritis has been produced experimentally in rabbits by the injection of large amounts. Apparently excretion is slow, and there is a tendency for it to accumulate in the spleen, liver, and possibly the lungs. This cumulative effect may have accounted for some of the severe reactions which have occurred in some clinics.

Certainly there can be no doubt as to the toxicity of gold compounds. The commonest reactions which may occur are those in the skin, the gastro-intestinal tract, the kidneys, the liver, the respiratory tract, the blood system, the nervous system, the mucous membranes, and the ocular and articular systems. These reactions have all been described in the literature.

The selection of a suitable preparation for use among the many that are available offers something of a problem. Myochrysin (sodium aurothiomalate) was the first preparation used, and was given intramuscularly. Nearly all the patients upon whom this preparation was used showed some form of reaction ranging from a simple conjunctivitis immediately following injection to a definite skin eruption, papular in type, with an albuminuria. Sodium gold thiosulfate (Chrysalbin) is a preparation we now use intravenously. It has produced some reactions—one with marked gastro-intestinal, skin, and bronchial manifestations. There are many other salts which have been used, including Solganol A (aurothioglucose), an intravenous preparation. Solganol B is used intramuscularly. Colloidal gold is apparently ineffective therapeutically and is not used in any of the clinics to our knowledge.

Since 1939 we have used gold salts in the treatment of 32 cases of chronic rheumatoid arthritis. Gold is not a cure-all in this condition, and we do not rely upon it solely for treatment. There is no substitute for an adequate medical study of the patient. The correction of any deficiency, whether it be an achlorhydria, anemia, avitaminosis, or endocrine disorder is essential. Certainly any active focus of infection should be removed, whether or not it has a direct influence on the disease. Rest, adequate diet, physical therapy, correction of postural defects, and orthopedic care are fundamental to all treatment. Psychotherapy has its own particular role in the treatment of the disease.

Our present routine is to hospitalize all patients receiving gold therapy. Platelet counts, hemoglobin determinations, red and white cell counts, sedimentation rates and urinalyses are done at weekly intervals, in addition to a thorough routine medical study. A decrease in the platelet count to less than 100,000 has been reported to portend dangerous complications during therapy. We have continued gold therapy with the count as low as 120,000. An increase in the sedimentation rate during the administration of gold is generally considered a contraindication to its continuance. We expect to obtain a slow but steady decrease in the sedimentation rate. We do not like to give gold when the patient's red cell count is under 4,000,000. We prefer to build the blood to higher levels before beginning treatment. The development of a leukopenia or neutropenia and casts or red cells in the urine are indications to cease treatment until these have cleared. Naturally, gold therapy is not attempted if there are clinical signs or a history of renal or hepatic disease, diabetes, nephritis, allergy, or tendency to hemorrhage.

Practically all patients receive injections of liver and liver and iron by mouth, as well as adequate vitamin therapy, during treatment. The intravenous injections of gold salt are given every other day. The initial dose is .01 Gm. and the amount is increased by .01 Gm. at each injection until a full ampule, or .05 Gm., is being given. Twenty such injections of .05 Gm. constitute a course, following which there is a rest period of from six to eight weeks. Then a second course is given in the same manner. Usually from two

to four courses are required to arrest the process completely, but clinical evidence of improvement is frequently apparent early in the first course of treatment.

In the 32 cases treated we have tried to classify the results as good, fair, or poor, and have indicated reactions which occurred. Classification of results is difficult. For instance, improvement in a patient with multiple ankylosed joints, so crippled that working is difficult and that he must be helped in rising or even eating, is a relative matter. Yet, if this patient can be relieved of pain and can sleep without sedatives, and if we can reduce the soft tissue swelling and redness about the joints and obtain some improvement in motion, then I think we are entitled to say that the result is fair, possibly even good.

The ages of the 32 patients treated ranged from 16 to 65, and there were 21 females and 11 males. One patient had Struempell-Marie spondylitis, 3 had Struempell-Marie spondylitis with involvement of the other joints, and in 28 cases there was involvement of multiple joints other than the spine. We considered the results good in 15 cases, fair in 14, and poor in 3 cases. In these 3 cases therapy had to be discontinued because of the reactions produced.

We had reactions in 11 cases. There were no cases with jaundice or involvement of the nervous system, and the skin eruptions which occurred never progressed to the exfoliative stage. There were no cases of purpura or agranulocytic angina. Of the 11 patients who developed reactions, 1 had a hematuria; 4 had severe skin eruptions varying from a diffuse erythema such as is seen in scarlet fever to a papular eruption accompanied by marked bronchial irritation and nausea; and 6 had relatively mild skin reactions, conjunctivitis, or slight mucous membrane irritation. One patient who had associated psoriasis noted a definite improvement in the skin disease during gold therapy. Almost all patients complained of some joint pain or increase in pain early in the course of treatment.

Many of the patients in whom good results were obtained are back at their usual occupations. In some instances there has been complete disappearance of swelling, pain, and redness; in fact, in several cases, it would be impossible to tell that there had been any previous joint disturbance. Where actual bony change had occurred, with partial or complete ankylosis, the swelling and pain disappeared and there was frequently improvement in function. Complete restoration in such cases cannot be hoped for, however.

Some of these cases with results classified as fair did not have more than one course of gold and possibly should not be included in the report. As has been previously stated, all patients with poor results had some type of reaction, requiring the discontinuance of gold therapy.

Summary

In an experience of 32 cases of rheumatoid arthritis treated with gold, our impressions of such therapy have been as follows:

1. The earlier the treatment is started, the greater is the likelihood of an excellent result or even an arrest of the disease.

2. Some improvement may be expected in cases of long duration, but where actual joint destruction has occurred, one cannot expect to create a new articulation.

3. The results in the Struempell-Marie or spondylitis cases are not especially outstanding, since most of these cases have marked joint disturbance and ankylosis before treatment is instituted.

4. Reactions are not necessarily an indication for complete cessation of therapy, but a warning that treatment should be stopped for the time being. It may be resumed later unless there is some more definite contraindication.

5. Gold therapy is contraindicated where there is a history or clinical evidence of cardiorenal or hepatic disease, diabetes mellitus, allergy or hemorrhagic tendency.

6. Careful selection of cases and careful study and observation during treatment will prevent many of the undesirable reactions.

7. Longer periods of observation are required to determine the permanency of the results.

Pulmonary tuberculosis should always be in the mind of the physician when a patient complains of chronic hoarseness or sore throat. The chief misleading factor in the diagnosis is the apparent well being of the patients whose latent pulmonary and systemic signs were masked by laryngeal symptoms. Jos. C. Donnelly, M.D., Jour. of Amer. Med. Assn., Oct. 31, 1942.

PSYCHOANALYTIC TREATMENT

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Psychoanalysis started as a method of investigation and treatment of mental disorders, and these aspects of it remain to the present day among its most important ones. In this short paper I shall not attempt to give a summary of what psychoanalysis is, but will concentrate on some points which may be useful to dispel some of the innumerable misconceptions prevalent, not only among the general public, but also, very frequently, among the medical profession.

The Technique Employed in Psychoanalysis

The fundamental method employed in analytic treatment has been called the technique of "free association". The barest essentials of it can be described as follows: Usually the patient is asked to lie down on a couch, so that he may "relax" more completely and thus concentrate on his thoughts. If he finds great difficulty in complying with this requirement, there are times when it may well be omitted. The patient is asked to tell the therapist everything that comes to his mind, irrespective of whether it appears coherent or not, whether it is important or trivial, intimate or impersonal. Even details which apparently bear no relation to the patient's illness, and may be embarrassing to mention—such as remarks about the appearance of the physician's consulting room, the clothes he wears, the pleasant or unpleasant expression of his face—are of interest. In short the analyst attempts to follow in so far as is possible all the width and depth, vicissitudes and variations of the patient's stream of thought. (Incidentally the silences are just as important as the utterances, and we frequently see that in the beginning patients have difficulties in "free associating".) We may ask what is the purpose of such a roundabout procedure. Paradoxically enough, this method turns out to be the shortest route to the core of the patient's problems, while it also allows the therapist to work at the level of the emotions rather than at the level of intellectual discussion of problems. In this respect psychoanalysis differs more widely from all other forms of psychotherapy, and herein lies one of the secrets of its greater power in many cases.

Behind the technique of free association lies an assumption which is proven over and again in analytic practice. The stream of thought does not follow an arbitrary course, but is on the contrary intimately dependent on the emotional life. In the thoughts that come to the patient's mind it is possible to detect, if one is skilful enough, signs of his innermost emotions, be they wishes, loves, angers, fears, disappointments, hopes, or discouragements. As mental illness is always intimately connected with the patient's emotions, the analyst can, if he knows how to see clear in the midst of an apparent muddle, soon reach and grasp all the threads of the leading emotions which have interwoven to form a disease process.

Furthermore, by this method the therapist will be dealing neither with the past of the patient, nor with his present, as an outsider, but from an inner vantage point; he is thus in an ideal position to modify the emotions which are at the basis of his troubles. Most other methods of psychotherapy discuss the patient's problems from the outside: both the doctor and the patient are spectators of the illness. But, contrary to what many psychiatrists believe, *understanding alone has no power to modify a neurosis or a psychosis.* The emotions that go with understanding are of equal or greater importance; and in the psychoanalytical method we are always dealing not only with thoughts but with feelings at the moment of their appearance.

The analyst not only follows what the patient tells, but carefully observes his actions, as these may also have a meaning.

A few cases may illustrate these points. Due to limitations of space these reports are bound to be incomplete and schematic to the point of distortion, and I beg the reader's indulgence.

A patient came to consult me because of extreme shyness which had led him into almost complete isolation. Furthermore, he had a feeling of unhappiness, and experienced difficulties in reading and studying. He was both intelligent and cultured, but was unable to tell with precision what these various difficulties were about, although he

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had more than one inkling of their meaning. He could not overcome them, however.

We started treatment. After a few meetings I noticed that he looked at his watch after only a few minutes had passed. I asked him about this action, and he was unable to tell why he did so, remarking that he was in no hurry. This behavior was repeated at practically every session. Gradually the patient became increasingly silent, and repeatedly told me that nothing came to his mind. I suspected that he was frightened, and that looking at the watch was an expression of his desire to leave. When I suggested this interpretation he denied it, explaining that he felt no fear. He not only continued to look at the watch, but I also noticed that instead of quietly lying on the couch, he began to put one foot on the floor, placing himself in a position from which he could jump up whenever he so desired. In subsequent sessions he was unable to lie down at all and sat up. Then he told me that it was no use to go on. I concluded that his fear of being with me had increased, but had as yet no signs as to what this fear might be about.

All this time he was speaking very little. A new action made its appearance during the sessions. He began to hit against the wall, at first rather timidly, but as weeks passed on, very violently, almost hurting his knuckles. I gathered that this was a means of expressing some form of aggression which he did not dare to express more directly. Gradually I became aware that both his thoughts and whatever small actions he performed, all pointed towards his being afraid of the treatment, and his having some aggression which he was inhibiting. I seized every opportunity to point that out, at first without much apparent success. His aggressive fantasies became more clear and his fear also increased. At this stage he not only had difficulty in lying on the couch, but developed a new little activity: he began to play with the handle of the door. I interpreted that as a sign that he wanted to be sure that the door could be opened whenever he wished.

The anger and the fear showed themselves in increasingly obvious actions; interestingly, the patient still did not *feel* either emotion. By then he not only played with the handle but left the door ajar, until a moment came, weeks later, when we had our sessions with the door full open. Clear fantasies of flight made their appearance: he imagined himself leaving the room like a hurricane, piercing walls, and disappearing in the distance at an astronomical speed. His aggression also became more open, and on one occasion in the midst of overwhelming feeling he told me in interrupted phrases and with the greatest difficulty that he had just thought of the last scene of "Othello".

Thus far I have described his fear of being with me in the room. But of course he had only recently met me, and it would not be reasonable to think that a harmless therapist would be the real cause of his fears. Together with the appearance and ever clearer manifestation of such strong emotions, memories of the past seemed to "pop up", as though coming from nowhere. One day he told me of the memory of an incident with his mother (when he was a child), when he had felt very angry with her and thought she had treated him unfairly. Another day an apparently irrelevant memory came to his mind, about some deep feelings which he had had many years previously one evening in the country. Then came a little incident of childhood, and the story of his curiosity about his mother, and the guilt about this curiosity; also the feelings about his father. And so on the memories flowed one by one. Each time a memory made its appearance we were able to see the relations between his state of mind during the session and the emotions which seemed implicit in the incident related. Thus we gradually disentangled and reconstructed step by step a long and complicated story in which we recaptured the delicate interweaving of events and feelings: how he had felt slighted, misunderstood, and treated in an unsatisfactory manner. We also saw his angers in connection with such experiences, his intimate feelings of love and shyness about expressing them, the rivalries, loves and hates in connection with the important figures of his past. *Gradually the patient relived his past in the analytic situation,* but this time the emotions were not nipped in the bud or in any way suppressed; the patient was given a chance to live them to a full extent and correspondingly deal with them more satisfactorily. It turned out that his various present day symptoms were the resultant of the variety of his emotions and the inadequate means of dealing with them—inadequate because he could do no better in the circum-

stances. A gradual re-adaptation occurred and the patient began to improve.

Another patient came to consult me because of homosexuality. He had practiced both heterosexuality and homosexuality, and was anxious to get rid of this latter. In the course of the treatment he developed a passion for a man whom the therapist happened to know. This man had some vague physical resemblance to the therapist, and furthermore had the characteristic in common of speaking the same language; this, together with various other details, clearly indicated that this homosexual attachment was a substitute for a more direct attachment to the therapist. It was not the therapist's business to experience shock at being the object of a homosexual attraction, but to try to see what there was in it in order to help the patient. He interpreted what he saw, and the patient immediately protested that he felt no physical attraction for the therapist at all. As treatment progressed the analyst became in the eyes of the patient more and more of a tyrant, a difficult person who was unwilling to help him—in fact, was carefully keeping his therapeutic power away from him. With his "reason" the patient saw that this feeling was really unwarranted, but he could not help it. Then came memories of his having felt that his father had a similar attitude. Gradually he began to express more aggression towards the analyst. At first this aggression was very much disguised, and for some time it was almost exclusively manifested by a peculiar symptom: anything the analyst said would provoke laughter in the patient. A moment came when as soon as the analyst gave signs of speaking, before he had time actually to utter a word, the patient would be seized by a convulsion of laughter. The patient realized that this was an unusual, apparently inadequate reaction, but could not help it.

But he also began to give signs of identification with the analyst. He wanted to inspect his books and felt guilty about it, feeling that it amounted to robbing him of his knowledge. On one occasion when he was shown into the office while the physician was not there, he sat in his chair, feeling both relish and defiance, but at the same time, guilt. In fantasy he became the physician. It was hard for him to "confess" what he had done. At that session memories came to his mind about having sat in his father's favorite chair, and played the role of head of the family when his father was away.

Later on he met the physician's wife, and passed some remarks about her breasts. Shortly afterwards he spoke of a violent attraction for a woman, and described her breasts in exactly the same manner. At a subsequent occasion he met the physician and his wife at a party. Shortly after they left the party the patient developed a violent homosexual attraction for a man he happened to see. Gradually, by innumerable signs, we were able to reconstruct the situation and see that his so-called homosexuality was at heart a feeling of inadequacy to deal with women, and a desire to rob his father of his strength, in order to become more potent; there was also a direct feeling of rivalry with him. To cope with all these feelings he played the submissive homosexual role, in this way hoping to avoid revenge; thus, at the party he developed a homosexual attraction after having felt attraction for his physician's wife. It amounted to saying: "Don't be angry with me; I am not trying to snatch your wife away, because I am a homosexual." As these various emotions were played in connection with the analyst, and in the course of the treatment were related to a variety of incidents of his past life, the patient became less frightened, more sure of himself, and gradually witnessed a dissolution of his homosexual tendencies.

A third case was that of a girl who came to consult me about a variety of obsessions and compulsions. She was afraid of being left alone in a room, afraid of not having control over various things. It was a problem for her to have a permanent wave, because she knew that she could not undo it even if she wanted to. If she put a coin in the collection box of a bus she felt great tension, because, however much she tried, she would never be able to find and recognize that coin among the many others.

In the course of the treatment it turned out that she had a most submissive attitude, and that she was always suppressing her own feelings. If she wanted to go somewhere and somebody told her not to do so, she would obey; she explained this obedience as "being good". But it turned out that "goodness" understood along those lines completely paralyzed her activities, and in fact threw her into sickness. In the course of the treatment we were able to find that the

real cause of this attitude was not a freely felt, freely decided desire for perfection. She was in fact trying to suppress a great deal of anger aroused by the domineering attitude of both parents, a domineering attitude which was all the more disturbing as it was subtle. The parents did not order her, but gave her to understand what they expected of her. The therapist played the part of what could be called a subsidiary parent, and gradually enabled her to reach a more serene attitude. It turned out that her obsessive-compulsive behavior was in one sense a *reductio ad absurdum* of the parents' attitude: it was an indirect way of telling them how cruel they were. The patient was not aware of this, but nevertheless felt guilty; the compulsive behavior was also in this respect a form of self-punishment for her anger. The benevolent attitude of the therapist reassured her fears, and she gradually became freer of symptoms. Although she became more independent, in no way did she become defiant of her parents, which was one of the things she feared. She loved them, but this time in a more objective manner, and did not feel forced to close her eyes to their limitations.

Let us very briefly review some aspects of the psychoanalytical technique implicit in the description of these cases.

1. An important aspect of the treatment is *interpretation.* The analyst tries to understand the meaning of the patient's words and activities, and communicates his interpretation to him. Underlying this method is the knowledge that a patient may have a thought process about which he himself knows nothing, and perform an activity whose meaning he ignores—in other words, the existence of the *unconscious.* Interpretation, among other things, calls attention to the unconscious processes, *and it must always be based on actual evidence furnished by the patient's talk or behavior.* Unfortunately we do not have more space here to discuss at length this very important subject.

2. Interpretation does not necessarily act by suggestion or persuasion, and does not necessarily aim at convincing the patient, although naturally some measure of conviction is always achieved eventually. But it often does not matter whether the patient agrees or not, because one important mechanism by which interpretation acts is reduction of anxiety, which permits changes in thinking or behavior. The first patient became less frightened of his aggression, and this was thus permitted to come more to the fore and eventually be dealt with by better methods which represented less expenditure of energy than those hitherto employed. The same process occurred in the second case. The third patient was helped by interpretation to dare to exert herself more, because she became aware of how much she crushed her own wishes. Here the doctor's benevolent attitude represented moral backing as well as reassurance. It can be said that it is not interpretation itself that works, but interpretation coupled with an understanding and benevolent attitude on the part of the therapist. There are moments in analysis when this latter factor suffices, but there are others when interpretation must be added.

3. Contrary to what is frequently said, the analytical treatment does not deal with the past, but with the present, as I have endeavored to show in the case reports. But it manages *to get the past inserted into the present in such a way that it becomes the present.* The second case illustrated this point clearly. When the patient sat in my chair, in a way he also sat in his father's chair, and so the past attitude was expressed in the present. It would be artificial to separate one from the other, and the patient's attitude toward the therapist could not be understood without understanding his attitude toward his father (or in other cases, toward one or many other persons of the early environment). In short we were dealing with a present moment which in itself showed the past in action.

Much as I would like to, I cannot enter into other aspects. I shall mention, however, one further point. Psychoanalysis, it is said, deals only with sex. Nothing is further from the truth. There is no human emotion of any kind that is excluded from an analytical treatment, from the highest manifestations of love and altruism to the humble signs of the self-preservative or sexual instinct. It is true, however, that sex appears as a frequent subject in psychoanalytical treatment, but so it does in ordinary life. A well adapted psychoanalyst should not be moved by a curiosity, springing from inner conflicts, to seek vicarious satisfactions by harping unnecessarily on sex. It is quite possible to discuss frankly sexual problems, even with

people who are excessively modest. It is all a question of attitude.

In order to make this discussion complete it would be necessary to enter in greater detail into the so-called sexual etiology of the neuroses. This would require a long consideration of the problem of symbolism and that of the utilization of the sexual instinct, together with the self-preservative instinct, for the highest human activities.

Duration of Treatment

The psychoanalytical method may be employed for therapy lasting from one hour to many years, all dependent on the case and the results desired. I feel that the psychoanalytical method is very often as rapid or more rapid than other methods of psychotherapy if one considers equality of achievements. But usually psychoanalysis aims at higher and more fundamental results than all other forms of psychotherapy, and naturally these cannot be obtained so quickly. To my knowledge only psychoanalysis attempts to effect substantial changes in the character of the person, and such a type of treatment naturally may take years. But I may cite from personal experience the case of a child in which considerable improvement in chronic difficulties was effected after only two sessions.

The Psychoanalyst

The psychoanalytical treatment requires a skill which can be acquired only by training. The International Society of Psychoanalysis demands several years of special training, in which, among other things, the candidate has to be submitted to a minimum of two years of psychoanalysis himself. The purpose of this is to help him to obtain as much understanding of his own difficulties as possible, and thus to minimize the risk of his playing out his own anxieties on his patients.

The instrument the analyst employs—the knife of his surgery—is the very delicate instrument of his own personality, with which he understands the patient and influences him. Therefore the results he obtains will depend not only on his training but also on his personality. Though there are some basic results which should be achieved by any well trained analyst, it is often said that each analyst does better with some cases than with others. Incidentally, the same can be applied to other methods of psychotherapy, and although I am of the opinion that psychoanalysis is superior to all other methods, I can well imagine that a gifted individual practicing other psychotherapy can obtain better results than a not so gifted analyst.

Indications

The technique of treatment varies according to the type of case treated. Following is a list of some conditions that can be treated by psychoanalysis:

Hysteria: From personal experience I feel that, so far as modification of symptoms is concerned, one can get equally good results by other methods. There may be cases, however, when a patient is reluctant to give up a symptom because it serves a certain purpose which cannot be easily done away with. In such cases a few interpretative sessions may do a better job than hypnosis. In other cases it may be just the opposite. Personally, I feel that the modification of the hysteric personality is a very difficult task, and very often I would prefer not to attempt it, but rather to help the patient develop in a favorable environment.

Obsessional neurosis and obsessional character: Psychoanalysis is the method of choice. The results are in my experience quite good. Sometimes a long treatment may be required, especially in long standing cases.

Anxiety states (anxiety neurosis or anxiety hysteria): In this group one may get good results with other treatments, but psychoanalysis is indicated just as well, especially in those difficult cases where other methods have failed.

Character difficulties of various kinds, depressive personalities: Prolonged analysis may be successful in some cases. But when we are confronted with poor assets and serious environmental difficulties we may get poor results.

Sexual difficulties and perversions: Here we may include impotence, frigidity, homosexuality, fetishism, and other perversions. Psychoanalysis may obtain very good results in such cases, although of course there may be unfavorable cases. I believe the analytic treatment is the only successful therapy in some of these cases.

The psychoses: A great deal of research is

being done at present in the psychoanalytic treatment of psychoses. My impression of results is as follows:

Psychoanalysis in "slowed up" depressions is not worth attempting; they respond very well to electric shock treatment. In some patients with repeated depressive episodes, it would be advisable to attempt psychoanalytic treatment during the intervals.

Manic excitement: I use a modified analytical approach in some cases, but in most of them I prefer other methods. As in depression, treatment during the intervals may be attempted.

Acute schizophrenia responds well to various other methods. In my experience one can get dramatic results by means of interpretation, but I am doubtful that one can shorten the duration.

Chronic schizophrenia with deterioration seems a hopeless condition. There may be other cases of chronic schizophrenia in which prolonged treatment may give results.

Schizoid personalities can and should be treated by the psychoanalytical method, and I do not believe there is any other method that really can get results in these patients. I cannot say that psychoanalysis works in all cases, but it can certainly help, and considerably change some patients, especially gifted persons.

The so-called *toxic and organic psychoses* of course are not amenable to psychoanalytic treatment.

Alcoholism and drug addictions can be treated by psychoanalysis. The results depend to a great extent on the case.

A number of *psychosomatic conditions* can also be treated by the analytic method. I may mention here some cases of bronchial asthma, colitis, constipation, and neurodermatitis.

A variety of *behavior disorders and disturbances of psychogenic origin in children* can be brilliantly solved by the technique of play analysis. Among these can be mentioned bed wetting, temper tantrums, pavor nocturnus, excessive masturbation, school difficulties, and excessive aggression or meekness.

There is at present a great deal of research work being done regarding the treatment of *psychopathic personalities and delinquents*. The results are very encouraging in some cases.

Finally, there are a variety of other conditions which are difficult to enclose in any psychiatric frame, and which are nevertheless understood and modified by analysis. Among these we may mention some paranoid states and transitory disorders (such as a sudden onset of suicidal tendencies in a crisis) seen in young people.

RECENT STUDIES ON BIOTIN

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WINSTON-SALEM

The story of biotin, a member of the vitamin B complex, is the story of three separate investigations, none of which had any visible connection with the others. One was the study of a factor whose presence is essential for the proper growth of yeast. This factor was named Bios II*b*. Another study concerned a factor which stimulates the respiration and growth of a root nodule bacterium, "Rhizobium". This factor was known as coenzyme R. The third was an investigation of a substance, "vitamin H", which prevents and cures the harmful effects of egg-white on animals. Bios II*b*, the yeast growth factor; coenzyme R, the factor necessary for growth and respiration of Rhizobium; and vitamin H, the anti-egg-white injury factor, have been clearly shown to be one and the same compound[1], now known as biotin.

Egg-White Injury

The syndrome of egg-white injury, occurring in rats fed substantial amounts of dried egg-white, was first reported by Boas[2] in 1927. In these animals, after three weeks on such a diet, typical symptoms are seen. Some of the more striking ones, as described by Boas, are reproduced here:

First "red scaly patches appear at the corners of the mouth, the coat becomes rough and sticky and the long hairs fall out. The fur on the abdomen shows at first a characteristic ribbed appearance, followed by the development of bald areas. Meanwhile the

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Presented before the Journal Club, January 18, 1943.

1. du Vigneaud, V., Melville, D. B., Gyoergy, P., and Rose, C. S.: On Identity of Vitamin H With Biotin, Science 92:62-3 (July 19) 1940.
2. Boas, M. A.: Effect of Desiccation Upon Nutritive Properties of Egg-White, Biochem. J. 21:712-24, 1927.

red patches spread to other parts of the body and the picture is one of an eczematous dermatitis. There are even skin hemorrhages in severe cases. The region around the mouth is always the most severely affected though there is often such marked blepharitis that the eyes are closed. . . . To the dermatitis, symptoms of nervous upset are now added. There is pronounced spasticity of the limbs, particularly of the hind legs, and the back is arched. . . . Death, which occurs in the final phase, is preceded by a rapid loss of weight, and the animal shows signs of extreme cyanosis. Rigor mortis sets in rapidly."

The first theory advanced to explain this syndrome was simply that drying fresh egg-white either produced a toxic substance or destroyed an essential factor. It was soon clear, however, that the drying of egg-white had nothing whatsoever to do with the results, inasmuch as fresh white-of-egg could likewise produce these symptoms.

This syndrome could be prevented and cured by the inclusion in the diet of a factor present in large amounts in raw potatoes, liver, milk and yeast. From some of these sources the active anti-egg-white injury factor, biotin, was first isolated in chemically pure form by Koegl and Toennis[3] in 1936, and in 1940 by du Vigneaud and his co-workers[4]. The full chemical structure of biotin has only recently been announced by du Vigneaud *et al*[5].

The mechanism by which some factor in the white-of-egg causes a deficiency of this vitamin, "biotin", in tissues of the rat has now been satisfactorily explained. It appears that there is a protein, "avidin", in egg-white which unites in the intestinal tract with the biotin. This combination is not absorbed by the body but is excreted through the feces. In this way, a deficiency of the biotin may be produced.

Most of the experimental evidence in support of this hypothesis has been presented by R. J. Williams and his associates[6]. These investigators found that, when egg-white was added to a medium which was adequate for the growth of yeast, yeast growth was no longer possible. However, if the medium (unsuitable for growth) were hydrolyzed, yeast growth was good. Here it appeared that the biotin had somehow formed a stable compound with egg-white, so that only hydrolysis could liberate the biotin, thus stimulating the growth of yeast. Next, it was shown that the biotin content of the feces increased when egg-white was administered in the diet, while the tissue stores became depleted. This was evidence for the accelerated excretion of biotin, presumably in association with some factor in egg-white. Finally, these same workers obtained a crystalline protein-like compound from egg-white, possessing all the properties of the factor which produces the syndrome. Williams has named the egg-white injury factor "avidin" to indicate its avidity for biotin.

It would appear, therefore, that the syndrome produced in the rat by egg-white is an induced biotin deficiency. Du Vigneaud at Cornell has fed diets very low in biotin to rats, even into the third generation, without obtaining the typical signs of biotin deficiency. The explanation for this phenomenon seems to lie in the ability of the intestinal flora of the rat to synthesize biotin. However, in the chick, the lack of biotin in the diet produces typical changes.

Biotin Deficiency in Man

A biotin-deficiency state has been demonstrated in man by Sydenstricker *et al*[7]. Four volunteers ate a diet containing dessicated egg white, in amounts designed to supply 30 per cent of the total caloric intake, and a minimal amount of biotin. Some of their observations are reproduced here: "During the seventh and eighth weeks, all showed a pronounced grayish pallor of the skin and mucous membranes . . . (and) atrophy of the lingual papillae . . . During the ninth and tenth weeks all subjects showed increasing dryness of the skin with marked reticulation and a fine branny desquamation.

3. Koegl, F. and Toennis, B.: Plant Growth Substances II Bios Problem. The Isolation of Crystalline Biotin From Egg Yolk. Ztschr. f. physiol. Chem. 242:43. 1936.
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6. Eakin, R. E., Snell, E. E., and Williams, R. J.: (a) Concentration and Assay of Avidin, Injury-Producing Protein in Raw Egg White. J. Biol. Chem. 140:535-43 (Aug.) 1941; (b) A Constituent of Raw Egg White Capable of Inactivating Biotin in Vitro. J. Biol. Chem. 136:801 (Dec.) 1940.
7. Sydenstricker, V. P., and others: Preliminary Observations on "Egg-White Injury" in Man and Its Cure With a Biotin Concentrate. Science 95:176-7 (Feb. 13) 1942.

A minimal amount of biotin. Some of their observations are reproduced here: "During the seventh and eighth weeks, all showed a pronounced grayish pallor of the skin and mucous membranes . . . (and) atrophy of the lingual papillae . . . During the ninth and tenth weeks all subjects showed increasing dryness of the skin with marked reticulation and a fine branny desquamation.

"After the fifth week the symptoms . . . were strikingly like those noted in experimental thiamin deficiency. Mild depression progressed to extreme lassitude, somnolence and in two instances a mild panic state. Muscle pains, hyperesthesia without demonstrable neurologic changes and localized paresthesias were complained of by all. After the tenth week patients complained of precordial distress and showed definite electrocardiographic changes." The excretion of biotin in the urine was reduced to one-tenth of that excreted by individuals taking a normal diet. When biotin was administered parenterally all the symptoms disappeared and the subjects returned to good health. The biotin content of the urine rose to normal. It is clear from this work that a biotin deficiency state can be produced in man and that biotin can correct this deficiency state.

In December, 1942, there appeared a rather complete study of biotin metabolism in man, showing that the excretion of biotin varies in the same direction as the amount of biotin in the diet[8]. However, since the average daily biotin content of the feces greatly exceeded the amounts present in the diet, it was deduced that in the human being a good deal of biotin is synthesized by the intestinal flora. In fact, it is believed that the quantity of biotin provided by this source may be adequate for the needs of man, and there is thus reason to doubt that human subjects can be made deficient simply by the lack of biotin in the diet. In a group of 60 patients suffering from malignant disease, blood disorders and endocrine conditions the biotin values were not found to be abnormally low; however, the assay method employed by this investigator measures urinary substances, other than biotin, which stimulate yeast growth. Hence the values reported may be too high.

The Role of Biotin in Cancer

Hepatic cirrhosis and cancer may be produced in rats by the daily oral administration of the chemical, "dimethyl-amino-azobenzene" or, as it is more commonly known, "butter yellow." Kensler and his associates at Memorial Hospital in New York have shown that these lesions can be almost completely prevented by the addition of casein and riboflavin to the diet[9]. This prophylactic effect, though marked, was not as complete as that obtained by supplements of dried liver or yeast. Du Vigneaud reasoned, therefore, that vitamins other than riboflavin should be investigated for their protective action. To his surprise, he found that the addition of biotin to the diets of rats fed riboflavin and casein while receiving the carcinogenic substance, "butter yellow," instead of reducing still further the incidence of hepatic tumors, appeared to increase considerably the number of cancerous animals[10]. Whereas there were no tumors in 19 control rats on the carcinogenic diet protected with casein and riboflavin, 9 out of 16 rats on this diet, supplemented with 2 to 4 gamma of crystalline biotin daily, developed tumors. This experimental fact has thus far not been adequately explained.

However, an interesting hypothesis which has attracted a great deal of attention proposes that malignant cells have an excessive requirement of biotin for their metabolism, inasmuch as biotin is one of the most active growth promoting substances known. Accordingly, the creation of a biotin deficiency —say, by feeding egg-white—might lead to the regression of cancers by reducing the concentration of the growth promoting biotin.

Experimental study of this hypothesis has developed along two lines. In the first, biotin deficient mice were inoculated with fragments of sarcomas to determine whether the tumors would grow. Contrary to expectations, it was found that tumors did grow in the tissues that were presumably low in biotin. In the second, analyses of the biotin content of cancerous and non-cancerous tissues have been made with the expectation that cancerous tissues would be biotin-rich. In the experiments of one investigator a number of tumors have been shown to be richer in biotin than were corresponding normal tissues, while another investigator found that none of the cancers could be classified as biotin-rich, although some appeared to be biotin-poor.

R. J. Williams[11] points out that "The

8. Oppel, T. W.: Studies of Biotin Metabolism in Man. Am. J. M. Sc. 204:856-75 (Dec.) 1942.

9. Kensler, C. J., and others: Partial Protection of Rats by Riboflavin With Casein Against Liver Cancer Caused by Dimethylaminoazobenzene, Science 93:308-10 (March 28) 1941.

10. du Vigneaud, V. and others: Procarcinogenic Effect of Biotin in Butter Yellow Tumor Formation, Science 95:174-76 (Feb. 13) 1942.

11. Pollack, Maxwell A., and others: B Vitamins in Cancerous Tissues; Biotin, Cancer Research 2:748-51 (Nov.) 1942.

finding that some tumors were richer, others poorer in biotin than the corresponding control tissues, may indicate one of at least three things: (a) that changes in biotin content are without special significance in regard to the cancerous transformation . . . (b) that there may be at least two different types of cancer metabolism, namely that which requires more and that which requires less biotin than the tissues of derivation . . . (c) that there may be one main type of metabolism common to all cancer, but that the biotin requirement may be more directly affected by some secondary aspect of the tissue such as that relating to its particular function in the non-cancerous, integrated organism."

The evidence opposed to the biotin cancer hypothesis resulting from these investigations has now become somewhat inconclusive as a result of some recent work. Burk and Winzler[12] have shown very clearly that yeast growth is obtained in normal tissues and urine by substances which, though chemically similar to biotin, do not possess vitamin H activity—that is, the ability to combine with avidin. This may account for the discrepancies in the analyses of the biotin content of cancerous and non-cancerous tissues, and we can draw no definite conclusions until data have been collected through the use of an analytical method which measures not only biotin but these other biotin-like substances. Moreover, there has been a recent report of a few instances in which regression of human cancer has been obtained in patients receiving large amounts of egg-white So far, details of this study have not been published.

Summary

Biotin, a substance of known chemical constitution and a member of the vitamin B complex, thus far has three established functions: (1) a growth factor for yeast; (2) a growth factor and stimulant of respiration for Rhizobium; (3) a vitamin whose lack in the tissues of rat, chick, dog, monkey or man results in well defined clinical symptoms. There is present in egg-white a protein, "avidin", which has the property of combining with biotin so that biotin is rendered non-absorbable. A deficiency state can thus be readily produced by including avidin in the diet. In man, biotin is apparently synthesized by the intestinal flora, and ordinarily it seems that man will not acquire a biotin deficiency very easily. Biotin has the power of increasing the incidence of a "butter yellow" cancer in rats maintained on a protective diet.

12. Burk, D. and Winzler, R. J.: Heat Labile Avidin Uncombinable, Species Specific and Other Vitamers of Biotin, Science 97:57-60 (Jan.) 1943.

TUBERCULOUS MENINGITIS IN CHILDREN

A Report of Forty Cases

RICHARD B. TUDOR, M. D.
DURHAM

Tuberculous meningitis has caused the death of forty children in the Pediatric Department of the Duke Hospital during the last twelve years. Although exact figures are not available, I believe that it is the most common type of meningitis seen in this locality.

A diagnosis of tuberculous meningitis was made either after autopsy, at which definite evidence of tuberculous infection of the meninges was found, or after x-ray examination of the lungs, spinal fluid examination and clinical evidence of the disease.

Thirty, or 76 per cent of our patients, were colored, and twenty-two, or 55 per cent, were males. All of the patients over the age of 6 years were females. Twenty-seven (67 per cent) of the children were under 3 years of age, twenty-one (52 per cent) were under 2 years and twelve (40 per cent) were under 1 year of age. The highest incidence of the disease, in these figures, would be in the first year. In this group, four of the children were 1 year of age, three were 6 months old, three were 7 months old, one was 8 months of age and one was 11 months of age.

The average duration of symptoms and signs of tuberculous meningitis in these forty children—that is, from the time they were first recognized until death—was 24.8 days, the extremes being 9 days in one child and 90 in another.

The history given in most cases was that of an insidious onset, with general malaise,

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stupor and vomiting. A definite date for the beginning of the illness was very difficult to get, in most instances. The chief complaints were, in the order of frequency, general malaise (87 per cent), stupor (78 per cent), vomiting (78 per cent), fever (69 per cent), anorexia (65 per cent), nausea (65 per cent), convulsions (47 per cent) and a stiff neck (47 per cent). Every child except four was stuporous upon admission. This is the most important single diagnostic sign, and is almost conclusive when coupled with the history of a gradual onset of symptoms. The past history is often very helpful in making the diagnosis. We obtained a definite history of tuberculous contact in twenty-five, or 72 per cent, of the children. In the last four years a definite history of contact has been obtained in all but two of the children. In most cases one member of the child's immediate family had active tuberculosis.

On physical examination, practically all of the children had some fever, usually low grade. One 3 year old colored female, however, had a temperature of 40.2 C. on admission. Reflexes were almost always hyperactive, and a stiff neck and positive Kernig and Brudzinski signs occurred in almost every child. Intracutaneous tuberculin tests were positive in twenty-two children, and negative in eleven. Five children died before the test could be read and in two a tuberculin test was not done. Dilutions of 1:1,000 old tuberculin were used in most cases. Rales were heard in only eight of the children. Nine of the children had a generalized lymphadenopathy.

As we believe that a lumbar puncture should be done on every child admitted with the slightest suspicion of a stiff neck or positive Kernig's sign, immediate lumbar puncture was performed on most of these children, and helped materially with the final diagnosis. The cell counts ranged from 42 to 590, the percentages of mononuclears varying from 30 per cent to 100 per cent. The spinal fluid globulin was increased in all cases, ranging from a trace to four plus. In ten examinations it was three or four plus. The spinal fluid sugar was fairly low in all but one case. In this case it was 56 mg. per 100 cc. In twenty-two cases a pellicle formed in the spinal fluid. The spinal fluids were clear in all but two children. In only three cases were acid fast organisms found in the stomach washings, and in five cases guinea pigs inoculated with the spinal fluid were found to have tuberculosis six weeks after inoculation. In these forty cases of tuberculous meningitis, then, the typical spinal fluid was clear; it formed a pellicle, contained about 280 cells, most of which were mononuclears, gave a two to three plus reaction for globulin, contained much less sugar than normal, and did not contain acid fast organisms on direct smear.

X-ray examination of the chest reveals pathology more frequently than physical examination would indicate. Chest x-rays were made on thirty-four of these children and revealed tuberculosis in twenty-three of them, normal chests in seven, pneumonia in one, and enlarged paratracheal lymph nodes at both hila in one. Two plates were too hazy to read. In fifteen of the children diagnosis of miliary tuberculosis was made by x-ray.

Autopsies were performed on seventeen of these children. Eleven were found to have miliary tuberculosis; four, apical pulmonary tuberculosis; one, a calcified primary tuberculous focus in the right lower lobe; and in one child the lungs were normal but the hilar lymph nodes showed scattered tubercles with central necrosis. In only five cases were tuberculomas found; however, in all cases definite evidence of tuberculous meningitis was found in the brain and meninges.

Although tuberculous meningitis, more often than most childhood diseases, occurs in its classical form, atypical cases are sufficiently common to lead to confusion in diagnosis[1]. For example, in five of these cases many equivocal signs did not become strongly positive until the children were very near death, and one 3 year old white boy seemed to have intestinal obstruction for four days before he developed definite signs of meningitis.

Although the number of patients admitted to the Duke Hospital for all causes each year has gradually increased (fig. 1), the number of children with tuberculous meningitis admitted each year over the same period has increased at a more rapid rate (fig. 2). The sharp increase in the number of cases in 1936-1937, 1939-1940, and 1942, preceded by low levels in 1935, 1938 and 1941, is interesting but does not appear to correlate with the total number of such cases in the state of North Carolina during the same period

1. Thelander, H. E. and Baldwin, J.: Variability of Findings in Tuberculous Meningitis, Arch. Pediat. 55:225-232 (April) 1938

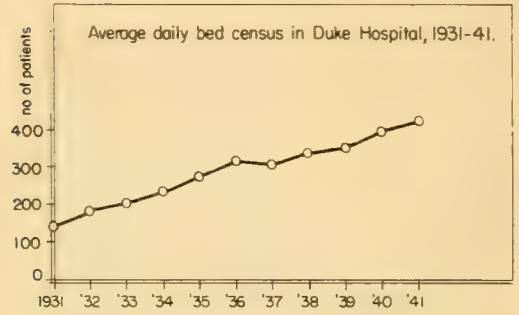


Fig. 1. Average daily bed census in Duke Hospital, 1931-1941.

(fig. 2)[2]. Most of our patients were seen in January, May, July and September—May being the peak month (fig. 2).

There has been a real increase in deaths from tuberculosis in England since the beginning of the war, and this has been accompanied by a great increase in cases of tuberculous meningitis among children[3]. In London and environs, the incidence of tuberculous meningitis among all ages during the period 1938 to 1941 increased 250 per cent[4].

Many cases of tuberculous meningitis have been reported as being cured[5]. Kramer and Stein in 1931 reviewed the literature for the past seventy years and found seventy-three reports of tuberculous meningitis with recovery[6]. Only 37 per cent of these patients, however, were under 10 years of age. Of the patients under 2½ years, only one recovered, while fifteen under the age of 5 years recovered. All of our patients died. Several years ago we saw a child with the typical findings of tuberculous meningitis. The child apparently recovered; however, he died with meningeal signs several months after being sent home. Autopsy showed that the child had had a well walled-off tuberculoma, which had finally broken down. I doubt that all of the reported recoveries were of this same type, although some of them

2. Annual Report of the Bureau of Vital Statistics, for the Years 1931 through 1939, published by the State of North Carolina
3. Medical Research Council, London. Report of the Committee on Tuberculosis in War-Time. Special report series no. 246. His Majesty's Stationery Office, 1942.
4. Daley, W. A. and Benjamin, B. Tuberculosis in London in Wartime. Brit. M. J. 2:417-420 (Oct. 10) 1942.
5. (a) Kelly, G. F.: Remission in Tuberculous Meningitis. Am. J. Dis. Child. 47:591-592 (March) 1934.
   (b) Blackfan, J. W. S. and Griffin, M. A.: Tuberculous Meningitis in Children. J. Path. and Bact. 40:489-502 (May) 1935
6. Kramer, D. W. and Stein, B. B. Tuberculous Meningitis with Syphilitic Meningitis Terminating in Recovery. Arch. Int. Med. 48:576-591 (Oct.) 1931.

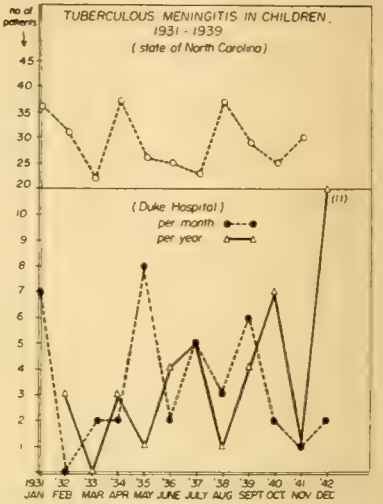


Fig. 2. Cases of tuberculous meningitis in children under 14 years of age in the state of North Carolina from 1931-1939, and in the Duke Hospital from 1931-1942.

may have been. Age seems to be an important factor in recovery[7]. Kramer and Stein seem to feel that different degrees of virulence in tubercle bacilli could account for some of the recoveries[6].

Whatever the factor or factors in recovery, our only hope at this date is prevention, and prevention is dependent upon avoidance of contact with active disease.

7. (a) Wallgren, A.: Some Aspects of Tuberculous Meningitis and Possibility of Its Prevention. J. Pediat. 5:291-298 (Sept.) 1934.
   (b) Dunn, C. H.: The Cytodiagnosis of Tuberculous Meningitis and the Possibility of Recovery. Arch. Pediat. 27:685-698, 1910.

Author's Note: Since this paper was submitted for publication we have had another case of tuberculous meningitis at Duke Hospital. The child was a colored female 8 months of age who had had frequent upper respiratory infections for the two months preceding admission. Eight days before admission she developed an upper respiratory infection and became fretful, anoretic and drowsy. Twenty-four hours before admission she began to have generalized convulsions. Physical examination was negative except for a moderately stiff neck. The next day she was generally spastic, however, and the Kernig sign was bilaterally positive. The spinal fluid was typical of tuberculous meningitis. A 1:10,000 dilution of old tuberculin was positive on the second day. She died before a chest x-ray could be obtained. Autopsy revealed miliary tuberculosis in both lungs, and also in the liver, kidneys and spleen. There was also a typical tuberculous meningitis. The contact was a neighbor with pulmonary tuberculosis, who saw much of the child. Interestingly enough, although the blood serology was negative, the spinal fluid Wassermann was positive.

THE EVOLUTION OF DRUG THERAPY

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WINSTON-SALEM

From the earliest times of recorded history man has sought in his environment for medicaments to alleviate his ills, annihilate his enemies and add to his desired virtues of strength, beauty and fertility. The progress of this evolution from magic through iatrochemistry to modern scientific medicine reflects man's own development during this period.

Therapy Among Primitive Peoples

Primitive man learned by experience to use many plants and animal tissues as medicaments, and some of these are still in use among the few remaining primitive peoples of the earth. The Negroes of the African West Coast were discovered by missionaries visiting them during the nineteenth century to be using the calabar bean in their trial by ordeal. This poison afforded a simple legal procedure. The prisoner at the bar of justice was given a potion of the drug; if he died he was guilty; if he survived he was innocent. Nor was this procedure without some merit; for the innocent man, with firm faith in the justice of the procedure, would boldly drink the potion down in one gulp, with a resulting emesis due to its gastric irritation that saved him from its absorption and lethal effects. The guilty one, on the other hand, by consuming it slowly and with apprehension, would circumvent the emetic action and suffer the effects of the absorbed poison[1]. Today we use the active principle of the same bean in medicine as physostigmine.

The Indians of the Orinoco Valley of the Amazon use the juice of a local plant—curare—to coat their arrows. This potent poison paralyzes the animal hunted for prey, or the human enemy. Today, we utilize the same drug in smaller doses to paralyze the muscles in convulsive therapy.

Numerous other useful substances may be mentioned which have been employed from earliest times of recorded history: squill, mentioned in the Ebers Papyrus of Ancient Egypt; ephedrine, employed by the Chinese; iodine, mentioned in the Bamberg surgery of the thirteenth century; quinine, the Peruvian bark used by the Indians of South America. But the use of these substances was purely empirical and accidental; for in most cases the exact indications for the drugs were not known, and thus ultimately they fell into disrepute. In most cases the effective materials were mixed with a multitude of noxious and inert materials and their administration was accompanied by incantations and voodooism, which were depended upon more than the drug itself. The Chinese, for example, utilized ephedrine for numerous conditions in which we know it to be ineffective, but failed to advocate its use for the one condition—bronchial asthma—in which it is most valuable.

Primitive man merely adopted the materials which nature provided. As civilization advanced these natural products were modified, purified and adapted for purposes other than that for which they were originally utilized. And finally, with the aid of synthetic chemistry, we try to create not only by duplicating the natural product but also by producing new derivatives and entirely new compounds, which may be superior to the naturally occurring substances. Today not only has the calabar bean been adapted for other uses than trial by ordeal, but a new compound—prostigmin—has been created which for many purposes is superior to the naturally occurring drug.

To cite another instance of the adaptation of drugs used in primitive cultures to modern medicine, the natives of South America discovered the stimulating effects derived from chewing the leaves of the coca plant. The active principle responsible for this action—cocaine—was isolated in 1860, and in 1902 the natural alkaloid was produced in the laboratory. Since then numerous other compounds have been synthesized as local anesthetics which have no counterpart among natural products and are superior to the latter in their safety and efficacy.

In its early development, pharmacy was intertwined with magic, sorcery, and astrology. In ancient Egypt, as among the primitive tribes of modern times, the practice of alchemy was, with sorcery and astrology, a prerogative of the priests, who handed on

Read before The Torch Club, Winston-Salem, November 12, 1942.
From the Department of Medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

1. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, The Macmillan Co., 1941, p. 376.

their secrets only to their successors. Even during the early centuries of the Christian era, this same philosophy prevailed, and hence the secrets of alchemy, astrology, sorcery and mathematics—the science of that period—were either conveyed by word of mouth or recorded in symbols and mystical characters. Only a small part of the ancient lore of Egypt, China, Chaldea, Byzantium, and the dark ages of the first millenium of the Christian Era has come down to us.

Pharmacy in the Middle Ages

At the middle of the second millenium, when the discovery of the New World signalled the dawn of a new age, there appeared a personality who was far beyond his contemporaries in their narrow scholastic philosophy and who may be looked upon as the pioneer of modern pharmacy and medicine. Philippus Areolus Theophrastus Bombastus of Hohenheim, called Paracelsus, was born in the year following Columbus' discovery of the New World. He was a dynamic character in whom two great cultural epochs met. Trained in the intellectual atmosphere of alchemy and astrology, he remained an alchemist and physician who devoted his attention to the preparation of medicines and the treatment of disease[2].

Paracelsus introduced the use of metals as remedies. He discovered the efficacy of mercury in syphilis and dropsy. His procedure of extracting the "quinta essentia" from medicinal plants inaugurated our modern procedures of extraction. Paracelsus first advocated the use of natural baths and diet for metabolic disturbances, migraine and epilepsy. To him also belongs credit for first describing silicosis, the miner's disease. The modern view of the entity of the organism was expressed in his aphorism, "To the physician, man should not mean a bundle of flesh and bones, tendons and limbs, but a product of all nature." This sentence epitomizes well the preachings of Haldane, Meyer and others who have stressed the importance of looking upon the individual as a whole rather than as an assemblage of independent parts.

The low state of medical practice at the beginning of the sixteenth century is well described in Robert Browning's description of Paracelsus' visit to the bedridden Margrave of Baden:

> Here drivelled the physician,
> Whose most infallible nostrum was at fault;
> There quaked the astrologer, whose horoscope
> Had promised him interminable years;
> Here a monk fumbled at the sick man's mouth
> With some undoubted relic—a sudary
> Of the virgin; while another piebald knave
> Of the same brotherhood (he loved them ever)
> Was actively preparing 'neath his nose
> Such a suffumigation as, once fired,
> Had stunk the patient dead ere he could groan.
> I cursed the doctor and upset the brother,
> Brushed past the conjurer, vowed that the first gust
> Of stench from the ingredients just alight
> Would raise a cross-grained devil in my sword,
> Not easily laid: and ere an hour the prince
> Slept as he never slept since prince he was.

Drug Therapy in the Seventeenth and Eighteenth Centuries

Pharmacy and its practitioners reached a low state indeed in the seventeenth and eighteenth centuries, if we may judge by the literature of that day. While Paracelsus had used alchemy as a basis for developing the first fundamental principles of iatrochemical therapeutics, alchemy soon degenerated into a mere hunt for gold and the philosopher's stone. It was this situation which evoked Ben Jonson's satiric play, "The Alchemist", directed against the deceitful alchemist and the greed for gold of the duped.

It was not until the seventeenth century that pharmacy attained the status of an independent profession. As members of a joint guild with the grocers, the pharmacists demanded of James I the rights of self-organization. In 1617 they were successful and founded the "Apothecaries Society". The struggle between the apothecary and the physician continued, however, for many years, each attempting to take duties which the other considered to be their prerogative.

The types of remedies used in Elizabethan England are exemplified by those mentioned in Shakespeare's plays. Here we find enumerated more than thirty medicinal herbs and drugs, including rhubarb, senna, camomile, ginger, opium and others in use today, as well as such things as "sympathetic powders", "aurum potabile", "mummy powders", "blood of dragons" and pills made from the skull of a man who had been hanged. Poisons also occupied an important, although illegal, part of the drugger's trade, as portrayed in several of Shakespeare's plays. Thus, in Henry VI we find Cardinal Beaufort crying on his deathbed:

> Bid the apothecary bring
> The strong poison that I bought of him.

2. Four Treatises of Theophrastus von Hohenheim, Called Paracelsus. Edited by H. E. Sigerist. Baltimore, The Johns Hopkins Press, 1941.

And in the famous scene in Romeo and Juliet Romeo, paying the poverty stricken pharmacist, says:

> There is thy gold, worse poison to men's souls,
> Doing more murders in this loathsome world,
> Than these poor compounds that thou mayst not sell.
> I sell thee poison; thou hast sold me none.

The seventeenth century saw a great increase in the number of chemical compounds available for therapeutic use. Laboring over their retorts and alembics the alchemists prepared for the first time numerous new salts, acids and compounds which they indiscriminately used for all afflictions. Among those who stand out preeminent at the time is van Helmont (1576-1644), who first distinguished acidity and alkalinity and recognized fermentation as a chemical process. He was the first to recommend and use alkalies for disturbances in digestion, and acids for conditions which he thought were due to the lack of acidity.

Every product of the alchemist, being new, seemed to possess miraculous properties, and in the state of ignorance of physiology which existed in that period it is not surprising to find each new drug prescribed for every ill. No writer of the period has satirized this situation better than Moliere, who in his "Malade Imaginaire" shows his accurate familiarity with the medicine of his time as well as with its pharmaceutical usage. He himself had a pulmonic disorder to which he succumbed just a few days after the opening of his play. He no doubt was well acquainted by personal experience with the remedies to which Monsieur Aragon was subjected.

The Rise of Scientific Medicine

The great advances in scientific medicine of the eighteenth and nineteenth centuries saw the introduction of many new and effective drugs—digitalis, emetin, cascara, and others. Many of these substances had been previously known and used empirically. It was not until the basis for their action was better understood that these drugs could be used rationally and to good effect.

Drug therapy during this period, although a much practiced art, could well be derided by the sceptical mind. As Oliver Wendell Holmes expressed it, "If all the drugs were sent to the bottom of the sea, it would be better for mankind and to the hurt of the fishes." At a more recent date Osler could say that only four drugs merited the title of specific remedies (quinine, iron, mercury, ipecac).

The modern evolution of drug therapy may be said to begin with Paul Ehrlich, who first envisioned the role which synthetic chemistry could play in elaborating compounds to alleviate human ills. He discovered arsphenamine, the curative drug for syphilis, and showed the way in which other "magic bullets" might be fashioned to counter other diseases. Chemotherapy in the two decades following Ehrlich produced nothing commensurate with his expectations, but with the introduction of the sulfonamide drugs this branch of science has again reached the forefront of medical progress. Numerous specifics have been discovered to combat human infections, and chemists are actively engaged in multiplying our available drugs for combatting disease.

The modern advances in therapy have not been limited to the production of drugs alone. The chemist has made available in synthetic form many of the vitamins, those dietary essentials which civilized man often lacks, and some of the hormones to replace the function of defective endocrine glands. The preparation of sera and vaccines has made it possible to confer immunity to such dread scourges as typhus, diphtheria and small pox which have decimated mankind in the past.

But even with this scientific accomplishment quackery with its nostrums has flourished as from time immemorial. The large advertisements for proprietary mixtures which stare us in the face from the morning newspaper and the blatant claims which come forth from the radio still maintain alive the spirit of the primitive voodoo man. Nor can the greed for gain be divorced from pharmacy so long as it remains a commercial industry.

In the laboratories, which Pasteur called "the temples of the future", the magical allegories of alchemy and the dreams of the past are being translated into the reality of the prosaic formulae of modern chemistry.

Tuberculosis is a chronic disease but in times of stress with restrictions on diet and hygienic living, its frequency always increases. Already the rates are beginning to rise, even in this country, and abroad there are hints that tuberculosis is taking its usual war-time toll. Ann'l Rep. Saranac Lab. for Study of Tuber., 1941.

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MAY, 1943

WOMEN AND THE WAR

Since Pearl Harbor every family doctor in active practice must have been impressed by the effect of the war upon the women of America. Many women have become directly engaged in the war effort as members of the WAACS, WAVES, and other official organizations. Those who have paid the greatest price, however, are those who have stayed at home. Some have never left the shelter of the farm house; others have kept on the job as stenographers, waitresses, clerks, or secretaries; still others have sought to help win the war by working in the Red Cross sewing rooms, by becoming nurses aides, or by engaging in other defense work.

It need not detract one iota from the praise due the men who are gallantly fighting for our country, to say that their mothers, wives, sisters and sweethearts have really suffered more than they. One sees almost daily the marks of this suffering. Peptic ulcers are almost as frequently seen now in women as in men; painful spastic colons are encountered regularly; even coronary heart disease is numbering an increasing proportion of women among its victims. Many women not so seriously scarred show on their faces the strain of sleepless nights. A noticeable number have developed cancer-phobia, and can hardly be persuaded that their suffering can be without organic cause.

The average doctor in civilian practice is carrying such a terrific load that it is often hard for him to be patient with these innocent victims of man's inhumanity to man; but never have women needed sympathy, encouragement and advice as now. Allowing them to talk to an understanding person often helps relieve the tension, and a thorough examination may reassure them that they have no serious organic disease. Frequently the most helpful prescription we can give them is Osler's excellent advice: to live one day at a time.

* * * *

PHYSICIAN HAVE THYSELF EXAMINED*

The subject of this editorial was suggested by a colleague whose patriotism exceeded his stamina. He learned by experience what some of us who are past middle age should apply as a preventive measure, i.e., the value of having a careful physical examination made by a chosen colleague. In our ardent desire to do our full part in the war we can best serve by limiting our efforts to our physical capacity. To do this successfully we must *ourselves* be carefully examined and advised before we start.

Some of our members who are beyond the draft age are doing their bit by taking over work of younger colleagues who have gone to war. This is a noble aim and effort and within reason can be successfully and safely carried on—but— physician know thyself and thine infirmities if they exist, ere thou enter upon thy task. We need all good men and true in these trying times, especially physicians, and the men who keep on the job longest and accomplish most in the long run, are those who do not sacrifice themselves prematurely and unnecessarily by assuming an unbearable load at the outset of a truly patriotic undertaking. That youthful resilience we once enjoyed is no longer present in some of us, and discretion at our age is the better part of valor.

* Editorial, J. M. Soc. New Jersey, 39:570 (Nov.) 1942.

THE MEDICAL CARE OF EXECUTIVES

The *Illinois Medical Journal* for April features a symposium on Industrial Health, in which are printed a number of papers read before the Conference on Industrial Health held in Chicago in January. The papers are all good; but the high water mark is reached in the paper by Dr. Walter C. Alvarez, "The Medical Care of Executives." With characteristic common sense the author points out the importance of conserving "the executives, engineers, architects and other brain workers who keep millions of workers supplied with blueprints, tools, materials and technical training."

It is true that while there is much talk about caring for the worker, little is said about caring for the men who keep the workers busy. Alvarez reminds us that a good executive is not easy to find or develop, and that "every able executive in industry today is a tremendous asset not only to his company but to the country as a whole and every effort must be made to keep him fit and to prolong his period of useful life."

During the present emergency it is only natural for every patriotic American to want to do his full duty; and the greater his responsibility, the more keenly he feels the obligation to his country. Such men as Alvarez describes need no spur to increase their efforts; but they do need to be encouraged to spare themselves every bit of detail possible, to secure enough sleep, to relax for a short time after meals, and to take frequent short holidays from business. One measure of a good executive is the ability to delegate authority to subordinates. Overeating and sketchy, hurried meals are equally to be avoided, as are excessive smoking and drinking.

If every doctor who is the personal physician of a high-powered executive would exercise his professional authority to insist that his patient obey the elementary rules of health, he would be rendering a real service to his country. And the physician should himself set an example to such patients—for the doctor, too, ranks in the executive class.

"BY PERMISSION OF ALFRED A. KNOPF, INC."

Some of our readers have commented upon the aptness of the sonnet by Hans Zinsser which was quoted in the editorial on Dr. F. B. Watkins in last month's issue of this JOURNAL. The story behind the use of this bit of verse may be of interest to some, and a warning to the editors of other state medical journals.

On March 25 the assistant editor of the NORTH CAROLINA MEDICAL JOURNAL wrote the editor of the *Atlantic Monthly* for permission to reprint part of Zinsser's sonnet, which first appeared in that magazine. A courteous reply came promptly, informing her that the "copyright in the Hans Zinsser material has been assigned to Little, Brown and Company. . . . It is accordingly necessary for you to write to them for the permission which you wish." A letter was promptly sent to Little, Brown and Company. When no reply had come at the end of eighteen days, it was necessary either to withdraw the verse or to assume that the desired permission would be forthcoming. Inasmuch as no publisher had ever refused us such a request, and since our relations with the *Atlantic Monthly* and its publishers, Little, Brown and Company have always been most cordial and satisfactory, it was felt certain that there would be no objection to quoting the sonnet. Imagine the surprise, therefore, with which the following communication was received the day after the April issue of the NORTH CAROLINA MEDICAL JOURNAL came off the press:

> "Your letter of March 30, addressed to Little Brown and Co., has been referred to us, since we control the rights in Hans Zinsser.
>
> "For permission to reprint in the "North Carolina Medical Journal" part of the last sonnet, which appeared on page 441 of AS I REMEMBER HIM, we shall have to ask a fee of $5.00. If this is agreeable to you will you please fill out the enclosed permission forms, which go to you in duplicate, and return both copies to us for our signature.
>
> "Yours faithfully,
> for ALFRED A. KNOPF, INC.
> "E. Rosenthal
> "Permissions Department"

The check was sent, and this time a

prompt acknowledgment came:

"Thank you for your check in amount of $5.00 covering permission to reprint part of the last sonnet which appeared on page 441 of AS I REMEMBER HIM and in our book, SPRING, SUMMER AND AUTUMN by Hans Zinsser.

"We would appreciate your publishing a statement in your next issue that the sonnet was reprinted from this book by permission of ALFRED A. KNOPF, INC.

"Yours faithfully,
for ALFRED A. KNOPF, INC.
"E. Rosenthal
"Permissions Dept."

In accord with their wishes, the NORTH CAROLINA MEDICAL JOURNAL takes pleasure in stating that part of Zinsser's last sonnet was reprinted by permission of ALFRED A. KNOPF, INC., in consideration of five dollars —not to mention the free advertising given Zinsser's book. Somehow it is hard to believe that that great man would approve of a medical journal's having to pay cash to apply his beautiful sentiment to another doctor who had also faced death unafraid.

* * * *

PERIBRONCHITIS

There is a lesion of the lungs, very properly called *peribronchitis,* which produces a characteristic syndrome. It is seldom described as a disease entity in the textbooks, and, in practice, frequently is confused with tuberculosis. Since it is the result of "upper respiratory infections", it is not an uncommon sequel to such infections.

The clinical picture presented is that of recurring exacerbations of a chronic lung infection, with short bouts of fever and cough productive of mucopurulent sputum. As a rule the fever lasts for only a few days, but the cough, expectoration and physical signs may persist for a considerable period.

On physical examination one finds no signs of consolidation, but a profusion of fine moist rales is heard over a part, or the whole, of one lobe of the lungs. Usually the lower lobe is affected, and the moist rales may persist for weeks or months. There is no characteristic radiographic picture.

The diagnosis is based on the extensive physical signs of pulmonary infection, with the history of recurring bouts of cough and fever, together with the absence of tubercle bacilli on repeated examinations of the sputum. The contrast between the degree of lung involvement and the slight constitutional evidences of disease is so very striking as to be a distinct aid in diagnosis.

Treatment should be directed to the eradication of sources of chronic infection in the nose and throat. Infected sinuses, teeth, adenoids and tonsils may cause repeated infection of the injured bronchi, resulting in progressive fibrosis of the bronchial walls following each attack of peribronchitis. Bronchiectasis may result. There is no evidence that prolonged bed-rest is of value, and the prognosis depends upon the severity and frequency of the characteristic bouts of fever and cough.

* * * *

DR. WILLIAM ALLAN

Death came quietly to Dr. William Allan at the North Carolina Baptist Hospital on Saturday, April 24. For more than a year he had lived under the shadow of death, but had gone ahead with his work—crowning a life of brilliant achievement with the organization of his Department of Medical Genetics at the Bowman Gray School of Medicine, and with the arrangement of the mass of material he had collected on this subject, so that his work may be carried on by his successors.

The editorial staff of the *Journal of the Bowman Gray School of Medicine* is planning to devote their next issue to a commemoration of Dr. Allan's achievements. This magazine will be available to his friends. Meanwhile it may be said that his was a full, rich and useful life. His contributions to medicine—not only in North Carolina, but in the nation—were many. The one who knew him best paid the highest tribute possible when she said, "He never did a little thing in his life." One of his colleagues who had had the sad privilege of making his last hours comfortable voiced the sentiment of all when he said: "That is just the way he wanted to go—working to the very last."

Dr. Allan's departure from this life came on the eve of Easter Sunday. Because his influence will live on and on, surely it may be said that his resurrection is already accomplished.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Case Summary

This 53 year old retired pharmacist was admitted to the North Carolina Baptist Hospital first on November 20, 1942. He had been a known diabetic for sixteen years prior to this admission. Two years after the discovery that he had diabetes he began to lose weight, and had polyuria, polydipsia, polyphagia, and weakness. Since that time he had been taking from 10 to 30 units of insulin a day. Three years ago he had a cellulitis of the right foot and went into coma. For the past three years he had taken protamine-zinc insulin, 20 units a day. For the past two years he had had decreasing vision in the right eye and severe frontal headaches, usually localized over the right eye. He had also had intermittent ankle edema and had known for several years that he had hypertension. At the age of 20 he had gonorrhea which was resistant to treatment. He had drunk heavily for the last five or six years. For two weeks prior to this first admission he had had morning vomiting and hypoglycemic reactions. There was a family history of diabetes.

Essential points in the physical examination on the first admission were puffiness of the eyelids, a dirty color of the skin, poor reaction of the pupils to light, and a lens opacity on the right with large areas of exudate and hemorrhage in the nasal portion of the retina. Arteriovenous nicking was fairly marked. The heart was slightly enlarged to the left. The blood pressure was 180 systolic, 110 diastolic. There was a slight prostatic enlargement. Urinalysis showed a 2 to 3 plus reaction for albumin, a 3 plus reaction for sugar, and varying numbers of white blood cells and granular casts. The nonprotein nitrogen was 44.3 mg. per 100 cc., cholesterol 374 mg. Total serum proteins were 4.6 Gm. The phenolsulfonphthalein test was 34 per cent, and the Fishberg concentration test 1.001. A glucose tolerance test showed a diabetic type of curve.

Since discharge on December 4, 1942, the patient had vomited considerably, particularly early in the morning. Two weeks prior to the second admission he vomited practically everything he had eaten. At times, during the two weeks before admission, he had to sit up in bed to get his breath. He had had nocturia two or three times a night. His headaches, mentioned in the first admission, were particularly severe during the two weeks prior to his second admission on February 4, 1943.

Physical examination on the second admission showed the blood pressure to be 180 systolic, 100 diastolic. The patient was a well developed, well nourished white male whose eyelids were slightly puffy and whose skin had a sallow color. There were a few moist rales at both lung bases. The heart was enlarged about 1 cm. outside the midclavicular line. The liver was palpable two finger breadths below the right costal margin and was moderately tender. There was a small indirect inguinal hernia. Rectal examination showed the prostate to be moderately enlarged. There was slight pretibial edema.

The urine gave a 3 plus reaction for albumin. The reaction for sugar varied from negative to 1 plus. There were occasional hyalin casts and white blood cells. The hemoglobin was 7.5 Gm. There were 2,900,000 red blood cells, and 13,100 white blood cells. The differential count was normal. The nonprotein nitrogen was 9.5 mg. per 100 cc. Examination of the stool was negative. An electrocardiogram showed sinus tachycardia.

The patient got along fairly well until the fifth hospital day, at which time he had an insulin reaction. He then began to have a recurrence of the vomiting. A note on February 17, 1943, states that the patient was showing signs of cardiac failure, with dyspnea and generalized edema. Blood chlorides were found to be low. An attempt was made to replace chlorides and proteins, and the patient was started on digitalis. He continued to vomit, however, went down-hill rapidly, and died on March 2, 1943.

Discussion

DR. TINSLEY R. HARRISON: The patient displayed rather profuse albuminuria, well-marked hypoproteinemia and slight edema, which tended to involve the face more than the rest of the body. The edema antedated

the dyspnea. These facts lead one to the conclusion that we are dealing with a nephrotic syndrome, although the presence of hypertension and terminal renal insufficiency would indicate that this is not a case of "pure" lipoid nephrosis. We therefore have to ask ourselves what condition will produce the combination of diabetes, hypertension and the nephrotic syndrome.

Diabetes and hypertension are associated in a number of conditions, among them Cushing's disease, the several adreno-genital syndromes, and the condition which Dr. Rousseau and Dr. Grollman have recently been studying carefully—namely, *hyperostosis frontalis interna.* However, none of these conditions are likely to be associated with nephrosis.

Hypertension, in association with excessive albuminuria, hypoproteinemia and edema, may occur in the second or subacute stage of glomerular nephritis, in some of the "toxemias" of pregnancy, and in certain instances of renal amyloidosis. However, none of these conditions will account for the diabetes unless we make the unlikely assumption that there was pancreatic amyloidosis. If this condition were present one would expect the excretory as well as the incretory function of the pancreas to be involved.

Various types of degenerative changes in the kidney may occur in diabetes. Among these are the fatty degeneration of the tubules sometimes seen in diabetics with long-standing hypercholesterolemia, and the deposition of glycogen, which is frequently seen in the tubules and sometimes involves the glomerular membrane. In neither instance, however, does one commonly have hypertension.

So far as I know, there is only one condition in which diabetes, hypertension and the nephrotic picture are likely to occur, and this is the condition known as intercapillary glomerular sclerosis, or the Kimmelstiel-Wilson disease. Here, we have extensive changes in the basement membrane of the glomerulus, and particularly that part of it which separates one capillary tuft from another. This picture is not unlike that which sometimes occurs in patients with essential hypertension without diabetes, and I believe that similar changes are occasionally seen in patients who have neither hypertension nor diabetes. However, the extensive changes—so extensive that the name glomerular sclerosis has been applied to them—do not usually occur except in people with long-standing diabetes, and such patients usually develop hypertension probably as the result of obstruction to the blood flow through the kidney consequent to the glomerular changes. The patients with intercapillary glomerular sclerosis usually are middle-aged individuals who have had diabetes for a number of years. After a variable period with edema and massive albuminuria and mild hypertension, the blood pressure rises further and renal insufficiency sets in. Except for the absence of a story of acute nephritis with hematuria in the past, and except for the presence of diabetes, the clinical picture in these patients resembles that of chronic glomerular nephritis in that the course is rather prolonged, lasting for several months or several years, and finally terminates in uremia.

In view of these considerations I do not believe that the case under discussion offers any particular difficulties in diagnosis. I think we are almost surely dealing with the Kimmelstiel-Wilson disease, or intercapillary glomerular sclerosis.

There is a mistaken tendency to assume that our ability to diagnose a given disease necessarily implies that we know a great deal about the disease. Such a complacent state of mind is to be deplored because it is a bar to further progress. It represents a nineteenth century mental attitude toward medicine. During the past century most progress in medicine came from learning to correlate clinical pictures with morbid anatomy. However, the twentieth century has been characterized by an attempt to go further, to be dissatisfied with only *knowing* about disease, and to make an attempt to *understand* disease. Actually, when we say that this patient had intercapillary glomerular sclerosis, we are simply offering a name to the disease, but we are not explaining the series of events which led to death. There are stil many gaps in our knowledge to be filled. Why, for instance, should diabetes lead to this particular change in the glomeruli? Is it the result of glycogen formation in the cells of the capillary basement membrane? Is it the result of some irritating process set up by the constant passage of sugar through the membranes? Is one to consider that perhaps the deficiency in carbohydrate metabolism leads, through some other mechanism, to the thickening of the

glomerulus? These are questions for which we have no answer at the present time. Similarly, it is not sufficient to say that the sclerosing process in the glomeruli leads to obstruction of the renal blood flow and therefore to hypertension. Why does interference with the renal blood flow lead to hypertension? Does this lead to the production of excessive amounts of pressor substance in the kidney? There is considerable evidence to suggest that this may be the case but it is not, to my mind, completely convincing at the present time. Does the disease in the kidneys lead to a deficiency in the production of an anti-pressor substance which normally tends to maintain the blood pressure at its relatively low level? There is likewise considerable evidence for this hypothesis, but again such evidence cannot be considered convincing at present. Is there a combination of excessive pressor action and deficient anti-pressor action by the diseased kidneys? Again, there is some evidence in favor of this assumption, but not enough to prove it.

We may also ask ourselves why, with thickening of the capillary basement membrane, there is increased protein excretion in the urine. One might think that the thicker membrane would be less permeable instead of more permeable than normal. There is, in fact, certain evidence derived from the work of Epstein and others, which suggests that the albuminuria of nephrotic states is due to a primary change in the nature of the protein molecule, which becomes a foreign substance to the body, and hence is excreted. However, such an assumption would not explain why the urine in these patients contains excessive amounts of fat, and why Congo red is likewise more readily excreted than normal. Hence, I think we have to assume that the thickened capillary membrane actually is more permeable than the normal thin membrane. Then it follows that the increased amount of protein in the urine is the result of this increased permeability of the glomerular capillary walls. Because of the excessive loss of protein there is a depletion of plasma protein with decrease in osmotic pressure in the blood, and hence the tendency to edema. This train of events seems to rest on reasonably sound evidence. However, we immediately encounter another mystery. In the case of proteins the excessive urinary excretion leads to a deficiency in the blood. However, in the case of fats, just the reverse happens; for even though the amount of fat excreted in the urine in nephrotic states is greater than normal we have hyperlipemia rather than deficiency of fat in the blood stream. The mechanism of this hyperlipemia is still not understood. In some experimental animals artificial depletion of plasma proteins sometimes results in increase in cholesterol and other lipid substances, but in other species this does not seem to occur.

The purpose of this discussion has been to point out that *knowledge* of disease, in the sense of ability to predict the pathologic change in the tissues, cannot be considered adequate. We must also seek for *understanding* of disease. This can only be done by an attempt to apply the functional methods of chemistry, physics and physiology to the older morphologic methods. Much has been learned but there is a vastly greater amount still to be learned. The physician can never afford to rest upon his oars.

Dr. Harrison's Diagnosis

Intercapillary glomerular sclerosis (Kimmelstiel-Wilson disease)

Anatomical Discussion

DR. ROBERT P. MOREHEAD: I thoroughly agree with Dr. Harrison that this complex problem can never be settled by morphologic methods alone. One finds many different types of glomerular lesions associated with the nephrotic syndrome, and as the terminal stages of the diseases are reached, they merge insensibly one into the other. The picture is further complicated by the fact that lesions identical with those seen in the various types of clinical nephrosis are not infrequently seen in patients not displaying this syndrome.

Interest in this case centers around the possibility of its belonging to the group of cases described by Kimmelstiel and Wilson in 1936[1]. On purely morphologic grounds, the case represents one of far advanced intercapillary glomerulosclerosis. I sent slides prepared from this material to Dr. Kimmelstiel, and he concurs in this opinion.

1. Kimmelstiel, P., and Wilson, C.: Intercapillary Lesions in Glomeruli of Kidney, Am. J. Path. 12:83-98 (Jan.) 1936.

Anatomical Diagnosis

1. Intercapillary glomerulosclerosis (Kimmelstiel-Wilson disease)
2. Cardiac hypertrophy and dilatation
3. Fibrinous pericarditis
4. Arteriolosclerosis
5. Right hydroureter
6. Pulmonary edema
7. Anasarca

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Negligence: A departure from approved methods in general use, if injurious to the patient, suffices to carry the case to the jury on the issue of negligence.

The following is an account of a civil action instituted for the purpose of recovering damages for alleged negligence on the part of a physician in failing to treat his patient properly after setting a bone in her right forearm.

The evidence in the case tended to show that on November 15, 1940, the plaintiff fell and sustained a fracture of the radius of the right forearm. The defendant, a physician, was called to treat her. He reduced the fracture and placed the arm and wrist on a board splint. Later he removed the board splint and used a metal cast, at the same time massaging the plaintiff's arm and hand. After that, the attending doctor saw the patient once or twice a week, and, in the patient's words: "Each time he (the doctor) came he brought a tube or something, and massaged my arm. He would take my arm out of the cast and massage it. He would not support the broken part of my arm while he was massaging it. He held it with the fingers of one hand, and rubbed my arm and hand with the other hand."

At the end of three months and ten days the plaintiff's fingers were rigid, and there was a deformity about the hand, resulting in the inability of the plaintiff to use it. Finally the defendant doctor took the patient to another physician, who examined her, and took an x-ray picture. The consultant found the wrist and hand out of alignment, and the bone was found to be out of position. He testified at the trial that the displacement could have occurred when the defendant removed the arm from the splint. There was further expert evidence to the effect that the manner in which the defendant massaged the plaintiff's arm "was unusual," and not according to the general practice, and that "too frequent removal of a broken bone from the cast is bad practice."

Later on the plaintiff secured the services of another physician who fractured the bone again and reset it. However, the results were only partially satisfactory.

The jury, after hearing the evidence, answered the issues of negligence and contributory negligence in favor of the plaintiff, and assessed her damages in the amount of $600.00.

From the judgment on the verdict the doctor appealed, assigning as error the refusal of the court to dismiss the action as in case of nonsuit.

When this case was considered before the Appellate Court the Justice writing the opinion called attention to certain features of the law which are quite familiar—namely, that a physician is held liable for an injury to a patient resulting from a lack of that degree of knowledge and skill ordinarily possessed by others of his profession, or for the omission to use reasonable care and diligence in the practice of his art, or for the failure to exercise his best judgment in the treatment of the case.

Specifically, he stated that the evidence tended to show that the defendant physician, in the case at hand, in treating the broken arm of the plaintiff, disregarded approved methods in removing the cast once or twice a week, and massaging the hand and arm, thereby not exercising his best judgment.

It was, therefore, the opinion of the Court that this was a case which should have been decided by the jury, and that their verdict was in keeping with the evidence submitted. As a consequence the verdict of the Superior Court, which awarded damages to the plaintiff in the sum of $600.00, was upheld.

In justice to the defendant doctor, it should perhaps be stated in this connection that there may have been some medical reason why he elected to depart from approved methods in the treatment of this case; but in such an event he should have asked for consultation to justify his deviation from the regular routine. After damage has resulted, such as the evidence tended to show with reference to this case, it is rather difficult to obtain medical testimony which would be helpful in defense of an action for negligence. (North Carolina Supreme Court, Vol. 222, Page 637. Decision rendered Spring Term, 1943.)

MILITARY MEDICINE

OFFICE OF CIVILIAN DEFENSE

Pennant To Identify Vehicles In Blackout

A uniform system of identification of emergency vehicles to enable them to operate during real or practice air-raid alarms was announced by the Office of Civilian Defense in Operations Letter No. 111, which is a supplement to Operations Letter No. 97.

The primary identifying device is a white pennant measuring 18 inches along each side with a 6-inch basic Civilian Defense insigne: that is, the letters CD in red inside a white triangle superimposed on a red circle. The pennant is to be attached to the left front portion of the vehicle.

To identify emergency motor vehicles at night, the Operations Letter further prescribes a headlight mask to be used over the right headlamp. This mask may be made of any opaque material that can be easily, quickly, and securely fastened to the headlamp. It is intended for use where blackout regulations permit the use of headlights; in coastal dimout areas it should be used in conjunction with dimout equipment. The design of the mask embodies the "CD" insigne 2½ to 3 inches in diameter in green.

Vehicles entitled to use the emergency identification include (a) vehicles of the armed forces of the United States or of her allies or other vehicles acting under orders or traveling with permission thereof; (b) vehicles of fire departments and governmental police agencies; (c) ambulances and rescue cars and other vehicles converted to such use in emergency services; (d) public utility repair vehicles operating in emergency service; (e) vehicles in

emergency service as defined by State Civilian Defense authorities.

Use of the pennants and masks described was made mandatory for the 16 States and the District of Columbia in the Eastern Defense Command in an administrative order issued by the Director of Civilian Defense in accordance with the new Air Raid Protection Regulations which went into effect February 17. The Operations Letter recommends that all States adopt the definition of emergency motor vehicles and the methods of identification prescribed. Although many states have already adopted different methods of identifying emergency vehicles, it was urged that all States adopt the new devices. It was pointed out that a uniform system is particularly important in order that emergency motor vehicles which may be crossing State lines may not face unnecessary interference.

Transportation Plans For Civilian Defense

Transportation for casualties from scenes of disaster to hospitals and for injured persons or other patients removed from Casualty Receiving Hospitals to Emergency Base Hospitals are included in plans for emergency transport service during war disasters, described in recent Operations Letters issued by the Office of Civilian Defense.

Plans for local transportation are centered in the Transport Officer of the U. S. Citizens Defense Corps. It is the duty of the Transport Officer to maintain inventories of local equipment that can be used by the various emergency services of the Citizens Defense Corps, and he is responsible for organization, training, and supervision of volunteer drivers' units. Such equipment may include passenger cars, station wagons, motorcycles, ambulances, and other private vehicle. The instructions provide, however, that ambulances and cars or trucks used as improvised ambulances, with their drivers, should be assigned regularly to the Emergency Medical Service and be under its direction.

Through joint action of the Office of Defense Transportation and the Office of Civilian Defense, concurred in by the War and Navy Departments, local commercial motor vehicles, including taxicabs and trucks of small operators, which are now under the jurisdiction of the Office of Defense Transportation, have been released to and also are available to the Transport Officer for local service in case of war emergency. He may make use of such vehicles immediately, without application to the ODT.

For transport facilities needed outside the local area, such as might be required for evacuation of civilians or for transfer of injured persons to Emergency Base Hospitals in other cities or rural areas, the OCD and the ODT are cooperating in the organization of motor transport units in the larger common, contract, and private motor carriers of the critical areas of the country. These units, which will be trained in convoy service, will be provided by the ODT on request of the local Commander of the Citizens Defense Corps through the State Transport Officer and proper ODT district managers. ODT is at present developing an organization in the critical areas of the country under which its district managers will make contact with the local Transport Officers to make certain that each community is organized to function under the plan.

Operations Letter No. 114, issued March 3, which describes the above arrangements, urges cooperative planning between the Citizens Defense Corps and such agencies as the American Red Cross, the Women's Defense and Ambulance Corps, and local or State automobile associations or clubs, in order that several agencies may not seek to mobilize the same equipment and drivers independently, but may do so in cooperation. It is pointed out, for instance, that most local Red Cross chapters have permanent transportation committees to provide motor transport facilities for disaster relief. By cooperative planning, such facilities can be made available also to the Citizens Defense Corps.

BULLETIN BOARD

Ninetieth Annual Session

OFFICIAL CALL

According to the By-Laws, as amended at the 1940 session, the House of Delegates will convene at Raleigh in the Ball Room of Hotel Sir Walter, Monday afternoon, May 10, 1943, at 2:00 o'clock.

Donnell B. Cobb, President

Attest:
Roscoe D. McMillan, Secretary-Treasurer

HEADQUARTERS, HOTEL SIR WALTER
European Plan

Rates

Hotel Sir Walter:
Single Rooms—$3.00 to $6.00
Double Rooms—(Double Bed) $5.00 to $7.00
Double Rooms—(Twin Beds) $5.50 to $9.00
All rooms with baths

Carolina Hotel:
Single Rooms—$3.00, $3.25 and $3.50
Double Rooms—$5.50 to $6.00
All rooms with baths

Andrew Johnson Hotel:
Single Rooms (Without bath)—$1.75
(Connecting bath)—$2.25
(Private bath)—$2.50
Double Rooms (Without bath) (Double bed)—$3.00
(Connecting bath) (Double bed)—$4.00
(Private bath) (Double bed)—$5.00
Double Rooms (Without bath) (Twin beds)—$3.50
(Private bath) (Twin beds)—$5.00

Raleigh Hotel:
Single Rooms (Without bath)—$1.50
(With bath)—$2.00
Double Rooms (Without bath)—$3.00
(With bath)—$4.00

For Program of Auxiliary
See Auxiliary Section of April Issue.

RESUME OF PROGRAM

MONDAY, MAY 10, 1943

9:00 a.m. — Registration Booth Opens
1 - 6 p.m. Registration of Auxiliary to the Medical Society (Hotel Sir Walter)
2:00 p.m. — House of Delegates of Medical Society (Virginia Dare Ball Room)
2:00 p.m. Health Officers' Section of North Carolina Public Health Association (Manteo Room)
5:30 p.m. - Intermission, House of Delegates of Medical Society
8:00 p.m. - House of Delegates of Medical Society Reconvenes.

TUESDAY, MAY 11, 1943

7:30 a.m. Officers' Breakfast, Medical Society (Manteo Room)
8:00 a.m. — Registration Booth Opens
9:30 a.m. First General Session of Medical Society (Virginia Dare Ball Room)
10:30 a.m. - Executive Board Meeting, Auxiliary to Medical Society (Carolina Hotel)
12:30 p.m. Wake Forest Medical Alumni Luncheon (Colonial Room)
Duke Medical Alumni Luncheon (Raleigh Room)
University of North Carolina Medical Alumni Luncheon (Manteo Room)
1:00 p.m. - Luncheon, Auxiliary to Medical Society (Carolina Hotel)
2:00 p.m. - Annual State Meeting, Auxiliary to Medical Society (Carolina Hotel)
2:30 p.m. - Section Meetings, Medical Society:
Section on Gynecology and Obstetrics (Raleigh Room)
Section on Surgery (Manteo Room)
Section on Practice of Medicine (Colonial Room)
Section on Public Health and Education (Roanoke Room)
7:00 p.m. President's Dinner (Virginia Dare Ball Room)
10:00 p.m. - Annual Medical Society Ball (Virginia Dare Ball Room)

WEDNESDAY, MAY 12, 1943

8:00 a.m. - Registration Booth Opens
9:15 a.m. Second General Session of Medical Society (Virginia Dare Ball Room)
12:00 m. Conjoint Session, Medical Society and State Board of Health (Virginia Dare Ball Room)
12:30 p.m. University of Pennsylvania Medical Alumni Luncheon (Raleigh Room)
Jefferson Medical College Alumni Luncheon (Colonial Room)
Medical College of Virginia Alumni Luncheon (Manteo Room)
2:30 p.m. - Section Meetings, Medical Society:
Section on Ophthalmology and Otolaryngology (Elizabeth Room)
Section on Pediatrics (Roanoke Room)
Section on General Practice of Medicine and Surgery (Virginia Dare Ball Room)
2:30 p.m. Last Meeting of House of Delegates of Medical Society (Colonial Room)
5:00 p.m. Third General Session, Medical Society (Virginia Dare Ball Room)

PROGRAM OF THE MEDICAL SOCIETY

Monday, May 10, 1943

9:00 a.m.—Registration Booth Opens

2:00 p.m.—First Meeting of the House of Delegates (Virginia Dare Ball Room)

Intermission at 5:30 p.m. to 8:00 p.m.

HEALTH OFFICERS' SECTION OF NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

(Manteo Room)

Monday, May 10, 2:00 p.m.

Louise M. Perry, M.D., Asheville Health Department, Asheville—"A Health Department Eye Clinic".

L. D. Hagaman, M.D., Lenoir — "Observation on Poliomyelitis".

Wilfred N. Sisk, M.D., Asheville—"The Treatment of Pinworms".

William P. Richardson, M.D., District Health Officer, Orange-Person-Chatham Health District, and Mr. Albert Coats, Institute of Government, Chapel Hill—"Special Training Program of the O. C. D.".

Monday, May 10, 1943 (Cont'd.)

8:00 p.m.—House of Delegates Reconvenes (Virginia Dare Ball Room)

Tuesday, May 11, 1943

7:30 a.m.—Officers' Breakfast (Manteo Room)
8:00 a.m.—Registration Booth Opens

FIRST GENERAL SESSION

(Virginia Dare Ball Room)

Tuesday, May 11, 1943

9:30 a.m.—Call to Order, Roscoe D. McMillan, M.D., Chairman Committee on Arrangements.
Invocation—Dr. Charles H. Durham, Raleigh
Announcements—
Presentation of the President—

9:45 a.m.—President's Address—Donnell B. Cobb, M.D., Goldsboro

10:05 a.m.—Captain Waltman Walters (MC) USNR, Corona, California (Guest Speaker) "Treatment of War Casualties".

10:35 a.m.—Report of Committee on Award of Moore County Medal for Best Paper Read in 1942 Session and Presentation of Medal to E. P. Alyea, M.D., Durham, for his paper on "Castration for Carcinoma of the Prostate Gland".
Addison G. Brenizer, M.D., Chairman Charlotte
Russell O. Lyday, M.D., Greensboro
C. T. Smith, M.D., Rocky Mount

10:45 a.m.—Report of Obituary Committee:
C. A. Woodard, M.D., Chairman, Wilson
S. A. Saunders, M.D., Aulander
Forrest M. Houser, M.D., Cherryville

10:55 a.m.—Lieutenant-Colonel Worth B. Daniels, M.D., Fort Bragg, Chief of Medical Service—"Sulfadiazine in the Treatment of Meningococcic Meningitis". From Section on Practice of Medicine.

11:15 a.m.—C. Graham Reid, M.D., Charlotte — "Brucellosis". From the Section on Public Health and Education.

11:35 a.m.—The Honorable J. Melville Broughton, Governor of North Carolina—Message to the Physicians of North Carolina

12:15 p.m.—Adjournment

ALUMNI LUNCHEONS

Tuesday, May 11, 12:30 p.m.

Wake Forest — D. H. Bridger, M.D., President, Bladenboro (Colonial Room)

Duke University—Jay M. Arena, M.D., President, Durham (Raleigh Room)

University of North Carolina—C. E. Howard, M.D., President, Goldsboro (Manteo Room)

SECTION ON GYNECOLOGY AND OBSTETRICS

(Raleigh Room)

Tuesday, May 11, 2:30 p.m.

Paul W. Johnson, M.D., Winston-Salem, Chairman

Ivan M. Procter, M.D. and Kenneth Dickinson, M.D., Raleigh—"A Study of Labor at the Pelvic Outlet".

Frank R. Lock, M.D., Winston-Salem — "Post-Partum Sterilization; Indications and Advantages". (Before the Second General Session, Wednesday, May 12, 2:30 p.m.)

Captain Carl T. Javert, M.D., Goldsboro Technical School of the United States Army, Goldsboro—"A Combined Isometric and Stereoscopic Technique for Radiographic Study of the Obstetrical Patient".

Arthur Grollman, M.D., Winston-Salem—"Sterility".

R. A. White, M.D., Asheville—"Correction of Sterility with Oil Injections Under Pressure".

Thomas Leslie Lee, M.D., Kinston—"Excerpts of Obstetrics and Gynecology".

SECTION ON SURGERY

(Manteo Room)

Tuesday, May 11, 2:30 p.m.

J. F. Robertson, M.D., Wilmington, Chairman

W. H. Sprunt, M.D. and James A. Harrill, M.D., Winston-Salem—"The Diagnosis and Treatment of Cardiospasm".

Lenox D. Baker, M.D., Durham—"Fractures of the Patella". (Before the Second General Session, Wednesday, May 12.)

T. C. Bost, M.D., Charlotte—"An Experimental Comparison of Certain 'Skin-Sterilizing' Agents".

J. Watts Farthing, M.D., Wilmington—"Presacral Sympathectomy".

Donald S. Daniel, M.D., Richmond, Va.—"Carcinoma of the Large Intestine".

Grace G. Jones, M.D., Charlotte—"Retroperitoneal Position of the Ascending Colon".

SECTION ON PRACTICE OF MEDICINE

(Colonial Room)

Tuesday, May 11, 2:30 p.m.

E. J. Wannamaker, M.D., Charlotte, Chairman

Richard S. Lyman, M.D., Durham, Professor of Neuropsychiatry, Duke University School of Medicine—"Some Principles of Diagnosing Malingering and Hysteria". Discussion to be led by Archie A. Barron, M.D., Charlotte.

Arthur A. Grollman, M.D., Winston-Salem, Research Professor of Medicine, Bowman Gray School of Medicine of Wake Forest College—"Clinical Application of Recent Studies in Hypertension". Discussion to be led by Wingate M. Johnson, M.D., Winston-Salem.

Major Philip W. Brown, M.D., Rochester, Minnesota, Associate Professor of Medicine, University of Minnesota, Consultant in Gastroenterology, Mayo Clinic—"Amebiasis". Discussion to be led by C. Graham Reid, M.D., Charlotte.

W. Reece Berryhill, M.D., Chapel Hill, Dean and Professor of Clinical Medicine, University of North Carolina School of Medicine—"Atypical Pneumonia of Unknown Etiology". Discussion to be led by Captain W. H. Roper, M.D., Fort Bragg.

James P. Hendrix, M.D., Durham, Associate Professor of Internal Medicine, Duke University—"Harmful Effects of the Sulfonamide Drugs". Discussion to be led by Edward McG. Hedgpeth, M.D., Chapel Hill.

Lieutenant-Colonel Worth B. Daniels, M.D., Fort Bragg, Chief of Medical Service—"Sulfadiazine in the Treatment of Meningococcic Meningitis". (Before the First General Session, Tuesday, May 11.)

SECTION ON PUBLIC HEALTH AND EDUCATION

(Roanoke Room)

Tuesday, May 11, 2:30 p.m.

E. H. Hand, M.D., Charlotte, Chairman

N. Thomas Ennett, M.D., Greenville, Health Officer of Pitt County—"Can Organized Medicine Alone Stay the Tide Towards Socialized Medicine?" Discussion to be led by S. B. McPheeters, Goldsboro, Health Officer of Wayne County.

Wilfred N. Sisk, M.D., Asheville, Health Officer of Buncombe County—"The Unsuspected Prevalence of Intestinal Parasites in North Carolina". Discussion to be led by William T. Freeman, M.D., Asheville.

William L. Fleming, Chapel Hill, Division of Public Health, School of Medicine—"Intensive Methods of Anti-Syphilitic Treatment". Discussion to be led by R. H. McDowell, M.D., Durham, Venereal Disease Control Officer of the Durham City-County Health Department.

A. C. Bulla, M.D., Raleigh, Health Officer of Wake County—"Looking Back While Marching On". Discussion to be led by E. R. Hardin, M.D., Health Officer of Robeson County, Lumberton.

C. Graham Reid, M.D., Charlotte—"Brucellosis". (Before First General Session, Tuesday morning, May 11.)

Lucy E. Morgan, Ph.D., Raleigh, Health Education Consultant, U. S. Public Health Service—"Communities Awake". Discussion to be led by J. Roy Hege, M.D., Raleigh, Director of Defense Activities.

PRESIDENT'S NIGHT

(Virginia Dare Ball Room)

Tuesday, May 11, 1943

(Dress—Optional)

7:00 p.m.—Banquet—Paul H. Ringer, M.D., Asheville, Toastmaster

Invocation—Wingate M. Johnson, M.D., Winston-Salem

Presentation of President's Jewel to Donnell B. Cobb, M.D., Goldsboro by James W. Vernon, M.D., Morganton, President-Elect.

Humorous Address—H. E. Spence, Ph.D., Duke University

Program by Wallace—The Magician, Durham

10:00 p.m.—President's Ball.

Wednesday, May 12, 1943

8:00 a.m.—Registration Booth Opens.

SECOND GENERAL SESSION
(Virginia Dare Ball Room)

Wednesday, May 12, 1943

9:15 a.m.—V. K. Hart, M.D., Charlotte—"Some Rhinolaryngological Tumors of Unusual Clinical Interest". From Section on Ophthalmology and Otolaryngology.

9:35 a.m.—Lenox D. Baker, M.D., Durham—"Fractures of the Patella". From Section on Surgery.

9:55 a.m.—J. LaBruce Ward, M.D., Asheville—"For Ways That Are Dark and Tricks That Are Vain". From Section on Pediatrics.

10:15 a.m.—Frank R. Lock, M.D., Winston-Salem—"Post-Partum Sterilization; Indications and Advantages". From Section on Gynecology and Obstetrics.

10:35 a.m.—Lieutenant Colonel Charles W. Mayo (MC) USA, Charleston, S. C. (Guest Speaker)

"One Stage Combined Abdomino-Perineal Resection for Malignancy of the Lower Colon, Rectosigmoid and Rectum". (Color Movie).

11:15 a.m.—Elias S. Faison, M.D., Charlotte—"Interstitial Nephritis". From Section on General Practice of Medicine and Surgery.

11:35 a.m.—Election of two members of State Board of Health.

CONJOINT SESSION
(Virginia Dare Ball Room)

Wednesday, May 12, 12:00 m.

S. D. Craig, M.D., Winston-Salem, President of State Board of Health, will preside over this meeting of the Medical Society of the State of North Carolina and the State Board of Health.

ALUMNI LUNCHEONS

Wednesday, May 12, 12:30 p. m.

University of Pennsylvania — R. L. McGee, M.D., President, Raleigh (Raleigh Room)

Jefferson Medical College—H. H. Bradshaw, M. D., President, Winston-Salem (Colonial Room)

Medical College of Virginia — B. C. Willis, M.D., President, Rocky Mount (Manteo Room)

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY
(Elizabeth Room)

Wednesday, May 12, 2:30 p.m.

W. Banks Anderson, M.D., Durham, Chairman

W. Banks Anderson, M.D., Durham, Chairman's Address—"Unilateral Exophthalmus as a Diagnostic Problem".

LeRoy M. Polvogt, M.D., Johns Hopkins Hospital Baltimore, Md.—"Recent Advances in Chemotherapy as Applied to Otolaryngology".

V. K. Hart, M.D., Charlotte—"Some Rhinolaryngological Tumors of Unusual Clinical Interest' (Lantern Slides.) (Before Second General Session, Wednesday, May 12.)

Robert Reeves, M.D., Durham — "Ophthalmological and Otolaryngological Lesions".

Nash Herndon, M.D. and William Allan, M.D., Winston-Salem—"Field Experiences with Hereditary Blindness and Deafness".

Captain Ralph Arnold, Medical Corps, Fort Bragg—Title unannounced.

A. J. Ellington, M.D., Burlington—"External Ear Infections".

SECTION ON PEDIATRICS
(Roanoke Room)

Wednesday, May 12, 2:30 p.m.

J. R. Ashe, M.D., Charlotte, Chairman

J. LaBruce Ward, M.D., Asheville—"For Ways That Are Dark and Tricks That Are Vain". (Before the Second General Session Wednesday, May 12.)

J. W. Crumpler, M.D., Rocky Mount—"The Sulfonamides in the Treatment of Hemorrhagic Nephritis".

Frank H. Richardson, M.D., Asheville—"Fried Foods and the Child".

E. V. Turner, M.D., Wilmington — "Streptococcal Disease in Infancy and Childhood".

Sam F. Ravenel, M.D. and Jean McAlister, M.D. Greensboro—"The Complications of Acute Hemorrhagic Nephritis".

Angus McBryde, M.D. and Frank Ledesma-Diaz M.D., Durham—"Typhoid Fever in Children".

Robert B. Lawson, M.D., Winston-Salem—"Acidosis in the Newly Born".

SECTION ON GENERAL PRACTICE OF MEDICINE AND SURGERY
(Virginia Dare Ball Room)

Wednesday, May 12, 2:30 p.m.

Ben Gold, M.D., Shelby, Chairman

C. A. Anderson, M.D., Burlington—"Mineral Oil by Mouth and by Bowel".

Julian M. Ruffin, M.D., Durham—"Deficiency Diseases".

Frank B. Marsh, M.D., Salisbury—"Peripheral Circulatory Failure; Its Mechanism and Treatment in Medical Disorders".

M. A. Pittman, M.D., Wilson—"What the General Practitioner Should Know About Back Injuries".

Elias S. Faison, M.D., Charlotte—"Interstitial Nephritis". (Before the Second General Session Wednesday, May 12.)

E. McG. Hedgpeth, M.D., Chapel Hill—"Spontaneous Pneumothorax: Diagnosis and Prognosis".

John R. Williams, M.D., Winston-Salem—"The Etiology and Classification of Hypertension".

Wednesday, May 12, 1943

2:30 p.m.—Last Meeting of the House of Delegates (Colonial Room)

THIRD GENERAL SESSION

(Virginia Dare Ball Room)

Wednesday, May 12, 1943

5:00 p.m.—Report of House of Delegates.

5:15 p.m.—Unfinished Business.

5:20 p.m.—New Business.

5:30 p.m.—Installation of President James W. Vernon, M.D. and President-Elect by retiring President Donnell B. Cobb, M.D.

5:40 p.m.—Remarks by President and President-Elect.

5:50 p.m.—Adjourn Sine Die.

COMMERCIAL EXHIBITORS

A. S. Aloe Company, St. Louis, Mo., Space No. 34

American Hospital Supply Corporation, Chicago, Ill., Spaces No. 49 and 50

American Optical Company, Southbridge, Mass., Space No. 8

The Borden Company, New York City, Space No. 13

Camel Cigarettes, New York City, Spaces No. 26, 27, 28, and 29

Carolina Surgical Supply Company, Raleigh, Spaces No. 23 and 24

Charles C. Haskell & Company, Inc., Richmond, Va., Space No. 17

Ciba Pharmaceutical Products, Inc., Summit, N. J., Space No. 48

Doak Company, Inc., Hyattsville, Md., Spaces No. 9 and 10

Doho Chemical Company, New York City, Spaces No. 18 and 19

Eli Lilly and Company, Indianapolis, Ind., Spaces No. 15 and 16

Endo Products, Inc., Richmond Hill, N. Y., Space No. 2

Holland-Rantos Company, Inc., New York City, Space No. 14

John Wyeth & Brother, Inc., Philadelphia, Pa., Spaces No. 43 and 44

Lederle Laboratories, New York City, Space No. 7

Mead Johnson and Company, Evansville, Ind., Spaces No. 3 and 4

Ortho Products, Inc., Linden, N. J., Space No. 35

Philip Morris & Company, Ltd., New York City, Spaces No. 41 and 42

Picker X-Ray Corporation, New York City, Spaces No. 36 and 37

Powers & Anderson, Inc., Winston-Salem, N. C. and Norfolk, Va., Spaces No. 51 and 52

S & H X-Ray Corporation, Charlotte, N. C., Space No. 47

Sharpe & Dohme, Inc., Philadelphia, Pa., Spaces No. 32 and 33

Smith, Kline and French Laboratories, Philadelphia, Pa., Spaces No. 11 and 12

Southeastern Optical Company, Richmond, Va., Spaces No. 20 and 21

E. R. Squibb & Sons, New York City, Spaces No. 5 and 6

Tablerock Laboratories, Greenville, S. C., Space No. 22

Valentine's Meat Juice Company, Richmond, Va., Space No. 1

William S. Merrell Company, Cincinnati, Ohio, Spaces No. 45 and 46

Winchester Surgical Supply Co., Charlotte, N. C. and Winchester-Kitch Surgical Co., Greensboro, N. C., Spaces No. 38, 39 and 40

SCIENTIFIC EXHIBITS

From American Medical Association

"An Industrial Health Program for a County Medical Society"

"Dietary Deficiency Diseases"

From Bowman Gray School of Medicine of Wake Forest College

"Field Studies in Hereditary Diseases"—William Allan, M.D., Winston-Salem, N. C.

"Recent Developments in Thoracic Surgery"—James F. O'Neill, M.D. and H. H. Bradshaw, M.D., Winston-Salem and M. D. Bonner, M.D., Jamestown.

From Duke University School of Medicine

(Subjects Unannounced)

From University of North Carolina School of Medicine

(Subjects Unannounced)

News Notes From the State Board of Health

One of the most encouraging signs of the times is the sustained downward trend in infant mortality. From January 1 to April 1 there were 1,150 deaths in North Carolina among babies under a year old. This figure represents a large group of infants, to be sure—**too many** to be lost during the first year of life—but during the corresponding period in 1942, the total was 1,340. These figures represent a decline of 190 in favor of 1943.

Moreover, there is a sustained downward trend in the infant **death rate**, which, for the first quarter of 1943, was 48.2, contrasted with 63 for the first three months of last year. The infant mortality rate represents the number of babies under a year old who die, for every **one thousand** live births.

What makes this downward trend all the more encouraging is the fact that it is being sustained in the face of one of the most spectacular increases in the number of births witnessed in recent years. Since January 1, there have been born in the State of North Carolina, and reported to the State Board of Health, 23,788 babies, as compared with 21,301 during the same period last year. The birth rate for the quarter just ended was 25.7, as compared with 23.3 last year.

For the period under consideration, the maternal death rate was 3.3. Last year it was 3.9 per one thousand live births.

There has also been a decrease in the total **number** of **deaths** among groups of all ages and in the **general death rate**, which was 8.3 the first three months of 1943, against 8.7 the corresponding period last year. So far this year, there have been reported in North Carolina 7,656 deaths, 300 fewer than occurred during the first quarter of 1942.

But there is a black spot on the health picture in North Carolina which cannot and should not be overlooked, because an enlightened public has the power to remove it. Deaths from diphtheria numbered 16 during January, February and March—when there should not have been a single such death, and very probably there would not have been, if the compulsory immunization law, passed in 1939, had been strictly complied with. This law provides that every child shall be immunized during the first year of life, and before being admitted to any school, public, private or parochial.

There were only 10 diphtheria deaths in North Carolina during the first quarter of 1942, as compared with the 16 above referred to, which already have occurred this year.

Here is what the North Carolina law actually says:

"Sec. 3. (a). It shall be incumbent upon the parent or parents or guardian of such child to present said child to a regularly licensed physician in the State of North Carolina, of his or her or their own choice, and request said physician to render this professional service. If the said parent or parents or guardian of such child are unable to pay for the services of a private physician of his or her or their own choice, they shall then present such child to the County Health Officer in the county in which such child resides and ask that an immunizing dose of prophylactic diphtheria agent which meets the standard approved by the United States Public Health Service for such biologic products, be administered, and such County Health Officer shall administer such treatment.

"Sec. 5. Any wilful violation of this act, or any part thereof, shall constitute a misdemeanor and shall be punishable at law by a fine of not more than fifty dollars ($50.00) or by imprisonment for not more than thirty (30) days, in the discretion of the court."

So far this year there have been only 361 deaths in the state from all forms of tuberculosis, which formerly was the No. 1 killer. This figure (361) compares with 419 for the corresponding period of 1942.

Another disease that is being successfully combated is pneumonia, which resulted in 617 deaths during January, February and March, contrasted with 728 such deaths a year ago.

A wholesome sign is the downward trend in the number of deaths attributable to pellagra. There have been only 54 such deaths so far this year, as compared with 79 during the first quarter of 1942.

News Notes From the North Carolina Tuberculosis Association

The new address of the North Carolina Tuberculosis Association is 517 Commercial Building on the corner of Martin and Wilmington Streets, Raleigh.

* * * *

The Annual Meeting of the Board of Directors of the North Carolina Tuberculosis Association will be held in the Roanoke Room of the Sir Walter Hotel on Monday afternoon, May 10, at five o'clock.

* * * *

The North Carolina Tuberculosis Association will hold an Institute for Tuberculosis Workers in Raleigh during the week of May 31-June 5. This Institute will be primarily for lay workers in the tuberculosis movement. Some of the most prominent authorities in tuberculosis both from the State and Nation will lecture at this Institute. Membership in the Institute will be by invitation only and invitations will be issued to not more than fifteen workers.

* * * *

The North Carolina School-Health Coordinating Service announces that it will hold four Child Health Conferences in North Carolina Colleges during the summer of 1943. Fellowships will again be provided by the Health Coordinating Service to cover one-half of the actual expenses. Any of the professional personnel of the local health and education departments is eligible for a fellowship, both white and colored. The demand for these fellowships is far greater than the supply. For this reason, application blanks may be secured from the North Carolina Tuberculosis Association or from Dr. W. P. Jacocks, Director Child Health Conferences, Box 2091, Raleigh, N. C.

Among the Industrial policy-holders of the Metropolitan Life Insurance Company, the tuberculosis death rate declined from 42.8 in 1941 to 41.7 in 1942. This is the first figure available with reference to the 1942 death rate from tuberculosis in the United States as a whole.

* * * *

The National Tuberculosis Association Bulletin in its April issue, expresses genuine appreciation for the work done by students in the School Press Project co-sponsored by the Columbia Scholastic Press Association and the National Tuberculosis Association. School publications in twenty-four states participated and out of this number 212 publications were rated as meriting certificates of award. Two Junior High Schools—The Franklin Reporter of Louisburg and the Spot Light of East Durham Junior High School—and four Senior High Schools—the Ki-Hi of Kinston; Pine Whispers of Winston-Salem with articles contributed from James A. Gray, John W. Hanes and Richard J. Reynolds High Schools—were among these winners of Awards. We were pleased to see three of these articles quoted in the current National Tuberculosis Bulletin.

* * * *

The total amount raised in the 1942 Seal Sale reached an all-time high of $123,411.71. This is an increase of $30,331.48 over 1941 or 32%. The sale for 1941 was $93,080.23. The 1942 goal set for North Carolina was $110,000.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

Dr. Tinsley R. Harrison, Professor of Medicine, addressed the Whitehead Society at the University of North Carolina Medical School on March 31. His subject was "Cardiac Dyspnea".

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Dr. Arthur Grollman, Research Professor of Medicine, spoke at the Marine Hospital in Norfolk on April 8 on the subject, "Recent Studies in Hypertension".

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting on April 13 at the Robert E. Lee Hotel in Winston-Salem. Dr. K. M. Grimson of Duke University was guest speaker, and his subject was "Neurological Aspects of Hypertension". Dr. Frank R. Lock of the Bowman Gray School of Medicine presented a case report.

National Foundation for Infantile Paralysis

The launching of another major attack on the problems concerning the spread of infantile paralysis was made known when Basil O'Connor, president of The National Foundation for Infantile Paralysis, announced that the National Foundation had made a five-year grant, totaling $150,000, to the Yale University School of Medicine, New Haven, Connecticut, for the establishment of the Yale Poliomyelitis Study Unit. The term of the grant will conclude June 30, 1948.

Recommendations for a Venereal Disease Control Program in Industry

Report of the
Advisory Committee on the Control of
Venereal Diseases
Otis L. Anderson, Chairman

In order to assemble current authoritative information and to formulate basic principles applicable to a program of venereal disease control in industry, the Surgeon General has appointed an Advisory Committee to the United States Public Health Service. This Committee has outlined the objectives of such a program as:

A. Medical and Public Health:
1. To find and refer for proper medical management all cases of venereal diseases among workers in industry.
2. To establish equitable policies for the employment of applicants and continuation of services of employees who have venereal diseases.
3. To coordinate the community and industrial venereal diseases control programs.

B. Employee:
1. To improve the physical condition of employees.
2. To reduce the number of workdays lost through illness or injury.
3. To provide job placement.
4. To prolong and increase the earning power of employees.

C. Employer:
1. To reduce compensation costs.
2. To lessen work interruptions and labor turnover.
3. To enhance production by increasing the efficiency of workers.
4. To minimize personnel problems.

In order to assure agreement on all phases of fundamental policy, the committee recommends that certain agencies be consulted in carrying out this program: the State labor department, industrial commission or similar department of State government; the appropriate committee of the State medical society; the association representing employers; the labor organizations; appropriate voluntary health and welfare associations.

Responsibility for the administration of the program should be shared by the industrial hygiene and venereal disease divisions of the State health department. The program should not be inaugurated without a complete educational program. The employee should be convinced that adequate treatment protects both his health and his ability to earn a living, and the employer that not all cases of venereal disease are infectious, through an educational program before venereal disease control measures are introduced.

In order that the control program may be effective, preemployment examinations should be mandatory for all workers. Laboratory tests for syphilis and gonorrhea should be made a part of the periodic, reemployment or "return from illness" physical examinations which are the policy of the industry. The interval between examinations should under no circumstances be more than three years.

It is of utmost importance that the results of the medical examination be considered confidential between the worker and the medical staff. Information should be furnished to others only with the consent of the individual concerned or, failing this, on legal advice. The medical staff should make proper recommendations to the management as to the physical fitness of the employee for work. When the usual clinical record is kept in an open file, venereal disease forms should be filed in the medical departments for the use of the medical staff only.

There is no reason for denying employment to an applicant or for discharging an employee because an examination has revealed evidence of syphilis or gonorrhea, provided:

1. That the employee agrees to place himself under competent medical management;
2. That, if the disease is in the infectious stage, employment should be delayed or interrupted until such time as a noninfectious state is established through treatment and open lesions are healed;
3. That when syphilis exists in a latent stage, employment should not be delayed nor interrupted;
4. That employment may be deferred or denied when the individual is an industrial hazard;
5. That occupational readjustments of employees be made of individuals developing disabling manifestations;
6. That workers with syphilis in any of its stages be excluded from areas where there is exposure to chemicals which may produce toxic reactions, and those having cardiovascular syphilis or neurosyphilis should not be exposed to physiologic stresses;
7. That workers with gonorrhea should be allowed to work only under special medical observation during the administration of sulfonamide drugs.

The applicant or the employee whose examination reveals evidence of a venereal disease should be called to the industrial physician's office for a conference. He should be instructed as to the nature of the disease which he has in order that he may cooperate intelligently with the requirements of the program. He should be referred to a reputable source for medical attention and be furnished with a letter directed to his physician stating the results of the examination and what is expected of the employee as to regularity of treatment if he is to be employed. The industrial physician should receive a record of treatment at about monthly intervals. The names of individuals who have neglected or refused treatment should be turned over to the health department for appropriate action in bringing them back to treatment.

The plant physician making a tentative diagnosis of communicable syphilis or gonorrhea should without delay acquaint the appropriate health authority with the facts.

New G-U Analgesic and Antiseptic Introduced by Squibb

A new analgesic and antiseptic for use in genito-urinary conditions has been added to the line of E. R. Squibb & Sons under the name, "Cajandol". A preparation of 5 per cent oil of cajeput dissolved in peanut oil, with 0.1 per cent propylparahydroxybenzoate as preservative, Cajandol was developed at the Brady Urological Institute, Johns Hopkins Hospital, and has been in use there during the past several years.

Clinical experience has shown that Cajandol alleviates pain and distress due to instrumentation and fulguration. It is also beneficial in many types of acute and chronic cystitis and other pathologic conditions of the bladder.

In treating these conditions, 10 cc. to 15 cc. of Cajandol are instilled into the bladder through a catheter at daily or bi-weekly intervals. In a few cases, Cajandol has been injected up the ureter during the use of the Councill stone extractor and has facilitated withdrawal of this instrument when there has been difficulty due to spasm of the ureter.

Cajandol is supplied in one-pint bottles only.

AUXILIARY

The biography of an eminent North Carolina doctor is presented each year by the Auxiliary to the Medical Society of the State of North Carolina to the Southern Medical Lending Library. This year we are privileged to present a memoir of the late Dr. Thomas Williams Mason Long, by his friend Judge R. Hunt Parker. Copies of this work will also be presented to the medical libraries of Duke University, the University of North Carolina and the Bowman Gray School of Medicine.

MRS. JOHN B. RAY
Research Chairman

DR. THOMAS WILLIAMS MASON LONG: A MEMOIR

By his friend R. HUNT PARKER

Thomas Williams Mason Long was born at Longview, Northampton County, North Carolina, on January 14, 1886. His parents were Lemuel Mackinnie and Bettie Gray (Mason) Long. Whatever might be his profession or work in life, the blood of his fathers marked him as one destined for public affairs. Through his father he was a lineal descendant of the illustrious Willie Jones of Halifax, Revolutionary leader and trusted lieutenant of Jefferson, an aristocratic democrat, a liberal rich man, a consummate politician, and "a man the object of more hatred and more adoration than has ever since lived" in North Carolina. His mother's father was Capt. Thomas W. Mason, many times a member of the General Assembly, Democratic candidate for Lieutenant Governor in 1896, and nominee of the Democratic caucus for U. S. Senator in 1895. Josephus Daniels, a close friend, described him as "a Chevalier Bayard if ever there was one; a man of rare eloquence," who "believed in everybody;" who "loved everybody."

Tom Long's widowed mother with her four sons and one daughter lived with her father at Longview. In those days before automobiles and movies and radio, when life was more stately and leisurely, sessions of superior court were gala occasions. Witnesses, suitors, jurors and lawyers gathered for a two weeks' stay at the county seat, mingling good fellowship with the trial of cases and the discussion of public matters. Only those who lived then know the friendship that such conditions brought to brethren of bench and bar. Captain Mason was the most beloved figure of the Northampton bar, and during court terms his home was filled with lawyers and judges. Tom Long revelled in this atmosphere of wit and humor and rare comradeship, and sat enthralled as these gifted men planned great political battles to rid North Carolina of misrule, and to lead their people into broad sunlit uplands of clean government, public improvements, public education and a fuller opportunity for the average man. His inherited instinct for public affairs then and there crystallized into a determination, that at times approached crusading zeal, to fight for the betterment of the average man—a determination that lasted as long as life. The memory of those days and the example of his grandfather's stainless life fashioned his career.

Tom Long was educated at home by private tutors, at the Petersburg Academy, and at V.P.I. In 1903 he entered the medical school of the University of North Carolina. In 1905 he transferred to the University College of Medicine, Richmond, Virginia. Owing to a protracted illness from typhoid fever he was out of medical school for a year, and received his degree in June, 1908. The same year he received his license to practice medicine in North Carolina. After an internship at Petersburg, Virginia, and a brief practice in Garysburg, North Carolina, near the place of his birth, he came in 1910 to Roanoke Rapids, which was his home until his death. Soon after settling there he married Maria Greenough Burgwyn, the daughter of an old and distinguished family of Northampton County.

Roanoke Rapids began when a cotton mill was built about 1895 on the banks of the Roanoke River. In the beginning it was a small cotton mill village, and even today, when it has a population of over 9,000 people, the majority of its citizens are employed by the textile mills. As in all the section of northeastern North Carolina lying adjacent to the banks of the Roanoke River, the people of this town were plagued with recurrent spells of malarial fever. All who could afford to, left during the summer, and returned only after a hard frost. Those who had to remain got through the summer as best they could with heavy doses of quinine and calomel, and all knew the shaking ague and pallid countenances of the plague that sapped the strength of imperial Rome. Then it was frequently said that Roanoke Rapids was a death trap. Such a problem challenged all the skill and learning of Tom Long.

He familiarized himself with the work of Doctors Carlos Finlay, Aristides Agramonte, James Carroll, Jesse W. Lazear and Walter Reed, who planned and directed in Cuba the experiments which have given man control over the dreaded peril, yellow fever. He knew that only the splendid sanitation work of General William C. Gorgas, carrying out the discoveries of the illustrious Walter Reed and his associates, made possible the cutting of the Panama Canal along the forty mile stretch of sweltering miasma, in which yellow fever and malaria, disease and death stalked in a hundred forms. He read the romatic story of the discovery that yellow fever was propagated by a mosquito, the Stegomyia, and malaria by the Anopheles, quite different in its habits. He learned that warfare against the Anopheles mosquito consisted mainly of oiling or draining stagnant waters, cutting away all vegetable growth within a radius of 200 yards of every human habitation, and breeding and disseminating larvae-eating minnows. Tom Long knew that he could eradicate malaria in Roanoke Rapids as Dr. Gorgas did in the Canal Zone. He threw into this fight all his fine powers of personality and persuasion, and obtained the cooperation of the public officials in a campaign for mosquito control. It was the first such effort in this section, and succeeded in transforming a pestilential spot of malaria into the healthiest town on the banks of the Roanoke. This achievement made Tom Long a marked man in his profession, and is a truer monument to his service than a thing of marble or granite.

In 1910 there was no hospital in Roanoke Rapids, in the county or in its immediate section. The pay of cotton mill operatives was pitifully small. The cost of hospitalization and surgery was a grievous burden. To lighten this burden and to bring adequate medical, surgical and hospital treatment to the laboring people of his town became Tom Long's ambition. In 1912 he, together with Drs. H. C.

Irwin and E. H. Atkins, founded the Roanoke Rapids Hospital, and in 1918 he was the foremost person in the construction of the present hospital and training school for nurses, of which he was president of the board of directors from 1912 to 1931, and a director until his death. The erection of a hospital did not solve the problem of placing medical and surgical service within the ability of the poor man to pay. In conjunction with the managership of the manufacturing plants there and their employees he devised a plan whereby a small deduction should be made each week from the pay of each employee for medical attention and hospitalization for the employee and every member of his family. Such plan met with instant success, and has been continued since. To have brought hospitalization and medical services within the reach of several thousand people of meager means for a quarter of a century is an achievement worthy of remembrance.

Tom Long never specialized, but was always a general practitioner. In addition to his practice with the employees of the manufacturing companies he carried on a large general practice. Honors in his profession were heaped upon him. He was Chairman of the Board of Directors of the North Carolina Sanatorium from 1922 to 1931; a member of the State Board of Medical Examiners from 1926 to 1932; a director of the State Hospital, Raleigh, from 1918 to 1920; and Secretary-Treasurer of the Medical Society of North Carolina from 1937 to his death.

A man of his intellectual power and force could not restrict himself to his profession alone. He said with the great Roman poet: "Homo sum, humani nihil a me alienum puto." His large simplicity of character and natural magnetism made him a born leader of men. In business he became director, vice-president and president of the First National Bank, a director of the Roanoke Mills Company, a director of the Rosemary Bank and Trust Company, and president of two drug store corporations. In the public life of the town he was chairman of the town board of commissioners from 1915 to 1922, Mayor from 1922 to 1930, and a trustee of the graded school district from 1915 to 1930. And all this while he was a dominant political power in his county and section.

In his private life he was blessed with the loyalty and companionship and love of a devoted wife. Their three daughters and two sons were to him a constant joy and happiness, and to them his life is an inspiration. His wife and children, his mother, three brothers and a sister survive.

Through no fault of his own, financial reverses came. As success left him calm—he had had so much of it—, so these reverses did not depress him. The next morning found him once more facing the world with serene and undaunted brow and "courage never to submit or yield." Now began his work in the General Assembly of North Carolina, which did so much to advance the cause of public health in our state. He was a member of the House during part of the session of 1931 and a member of the Senate in the sessions of 1933, 1937, 1939 and part of 1941. He successfully guided through the 1939 session three measures hailed as outstanding in the health laws of the nation. They required persons wishing to be married to pass health tests, all expectant mothers to take blood tests for syphilis, and all children to be immunized for diphtheria. In that session he also successfully sponsored legislation to appropriate $250,000.00 for the establishment of a sanatorium in eastern North Carolina for the treatment of tuberculosis. In the 1941 session this appropriation was increased to $600,000.00 **One of these buildings should bear his name as a memorial to his achievements for public health in North Carolina.** In the 1941 session he had an engagement to breakfast with the Governor of North Carolina to discuss legislation for public health on the morning of February 4. He died on the night of February 3.

While his profession marked him out for leadership in public health, he by no means confined his efforts to such legislation. His interests were as varied as the business of the General Assembly, for he stood at the heart of life and his activities embraced everything that interested his fellows. He was preeminently a social being recognizing his duty to others. The **News and Observer** in an editorial upon his death accurately summed up the unique place Tom Long had achieved for himself there. "It will be many sessions before a legislator will be found anywhere in the state who will fill the niche which Dr. Long had carved for himself in the legislative life of the state. Naturally, the physicians of the state looked to him as a spokesman of their view point in legislative matters. What was less usual was that lay members of the senate had come to regard him as a final authority on matters touching the medical profession, realizing that while he was faithful to the view point of his profession he never permitted himself to lose sight of the interest of the whole people of the state." This editorial might have added that he won this unique place by devoted loyalty to the land of his birth and a wide practical sagacity, which enabled him to move by slow degrees and to conciliate divergent interests by sheer tact and good will.

Tom Long fought some bitter political battles, and when he gave his heart and reason to a cause he never counted the cost. The throes of an earthquake could not shake him from the performance of his pledged word or from loyalty to a friend. When he was convinced he was right—and he was a man of rare intelligence—, not all the combined forces of wealth or society or the multitude could for an instant cause him to swerve one hair's breadth from his course. He was one

> Who comprehends his trust, and to the same
> Keeps faithful with a singleness of aim;
> And therefore does not stoop, nor lie in wait
> For wealth, or honors, or for worldly state;
> Whom they must follow; on whose head must fall,
> Like showers of manna; if they come at all.

This quality and his love and understanding of the trials and sorrows and ambitions of poor people, so many of whom were his patients and friends, made Tom Long the ablest champion of the average man and woman in the public affairs of North Carolina during his days as a senator.

On the afternoon of February 3, 1941, he attended a meeting of the Senate Finance Committee. Feeling indisposed, he left and entered Rex Hospital. Almost immediately he suffered a severe heart attack. As his spirit which drew from out the boundless deep was turning again home, he could say with Mr. Valiant-for-Truth: "My sword I give to him that shall succeed me in my pilgrimage, and my courage and skill to him that can get it. My marks and scars I carry with me, to be a witness for me that I have fought His battles Who now will be my rewarder." At 6:10 p.m. he was dead. At 8:00 p.m. both Houses of the General Assembly met. At the request of the Lieutenant Governor the chaplain read to a hushed Senate the Twenty-Third Psalm. Governor Harris then said: "It is with profound sorrow that the chair has the distressing duty to announce the passing of Senator Thomas Williams Mason Long. Without

reflecting on any member of the senate Dr. Tom—as he was affectionately known—was the best loved member of this body." Tributes were paid to him in the House. And then without the transaction of business both Houses adjourned in his memory.

When the notice of his death was flashed to his home hundreds of strong men and women wept unashamed, saying, "I have lost my best friend." Beside his open grave in a little country churchyard in his native county stood the Governor, the General Assembly in a body, and thousands of his friends. As his casket was carried from the church the audible sobbing of men and women throughout the vast crowd was a tribute of love and affection such as "a sceptered king or a laurelled conqueror" might have envied.

Many centuries ago a Greek physician wrote: "I was Pausanias, physician, reported to have died of natural disease (but I tell you) harried to death by sick people asking aid. In bodyless Elysian Fields, however, where the one medicine has already been given, I sleep the night through." The world has long ago decided that doctors have no working hours which anybody is bound to respect, and nothing except a doctor's extreme bodily illness will excuse him from refusing to help a person who thinks he may need his help at any hour of the day or night.

These exacting demands of his profession came to Tom Long in full and rounded measure. Day and night for a third of a century he answered every call. It mattered nothing whether the patient could pay, whether the way was long and cold, whether he was worn by a sleepless night; when duty called, he ever answered, "I am here." His cheer, his optimism, his faith, his genuine friendship made him in every home the beloved physician. At many a pain-racked bed, at birth, at death, he was more than the physician, he was the family's comforter and friend. No one will ever know in how many humble homes he gave medicine and food from his own means. To his patients, he gave his all, wearing himself out in their service, and to him they gave their loyalty and love and gratitude. His life exemplified Robert Louis Stevenson's description of a physician: "The physician is the flower of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Heraclean cheerfulness and courage. So it is that he brings aid and cheer into the sick room, and often enough, though not so often as he wishes, brings healing." By common consent Dr. John Brown, of Edinburgh, was the "beloved physician" of the nineteenth century. The same common consent in our section conferred that title on Tom Long.

The secret of friendship is to forget yourself and love others with a love colored and lit by Christian charity. The failures are the egotists wrapped up in self, the doctrinaires in chains to a dogma, the Pharisees who despise their brethren. Tom Long had a genius for friendship and with Abou Ben Adhem he said to the angel writing in a book of gold: "Write me as one that loves his fellow man." Like Sir Walter Scott he spoke to all "as if he was their blood relation." His joyous vitality, his unfailing and universal sympathy, his spontaneous and uniform courtesy, his interest in all that pertains to men and women, his devoted loyalty, endeared him to all. He made a light and warmth around him. To know him was to love him. In his passing he has left us not only the products of his life as a helper and friend of mankind but almost his bodily presence, a personality which to his friends is as real and vivid as if in the flesh he still moved among us. He still haunts his own community like an emanation from its changeless river and plains, so that one almost looks to see on some path in an autumn gloaming his smiling face and to hear again the kindly tone of his voice.

We cannot believe that his radiant vigor and bouyant cheerfulness fill the devouring grave.

O strong soul, by what shore
Tarriest thou now? For that force.
Surely, has not been left vain!
Somewhere, surely afar,
In the sounding labor house vast
Of being, is practiced that strength,
Zealous, beneficent firm!
Yes, in some far-shining sphere,
Conscious or not of the past,
Still thou performest the word
Of the Spirit in whom thou dost live
Prompt, unwearied as here.

In Memoriam

RESOLUTIONS ON THE DEATH OF DR. FONSO BUTLER WATKINS

When a faithful servant of humanity has been connected with an institution for thirty-three years, and has been its head since 1938, his removal by death leaves a vacancy that cannot easily be filled. Such a one was Dr. Fonso Butler Watkins, who closed his long and faithful work for the State Hospital at Morganton on March 8, 1943. The Directors of this Hospital in session assembled present through their committee the following tribute:

RESOLVED, That the State Hospital in the death of Dr. Watkins has lost a valuable and efficient physician, a man in whom were linked simplicity and scientific knowledge, a genial personality, and a friend ever ready to serve; be it further

RESOLVED, That North Carolina has lost a psychiatrist who was recognized not only in this state as President of the North Carolina Neuro-Psychiatric Society, but also in many other states through the valuable papers given on this subject. His interest as a physician was shown by his membership in the County and State Medical Societies, the American Medical Association, the American Psychiatric Association, and his Fellowship in the American College of Surgeons. His scholarship was evidenced by his membership in the Phi Beta Kappa Society; therefore be it further

RESOLVED, That a copy of these resolutions be sent to the family of Dr. Watkins, be spread upon the minutes of the Board of Directors and that a copy be given also to the press and to the medical journals.

Guy S. Kirby
J. L. Snyder
C. C. Poindexter
Rex Gass
Mrs. Margaret P. Bailey
H. L. Riddle
J. H. Beall

Tuberculosis remains predominantly a disease of adults in their productive years and causes invalidism, loss of earning power, expense of hospitalization and treatment. A. C. Reid. Jour. Industrial Hyg. and Toxicology, Oct., 1940.

BOOK REVIEWS

Psychosomatic Medicine: The Clinical Application of Psychopathology to General Medical Problems. By Edward Weiss, M.D., Professor of Clinical Medicine, Temple University Medical School, and O. Spurgeon English, M. D., Professor of Psychiatry, Temple University Medical School, Philadelphia. 687 pages. Price, $8.00. Philadelphia: W. B. Saunders Company, 1943.

When Dr. William MacNider was president of the State Medical Society, he chose for the subject of his presidential address "The Balanced Mind in Medicine." The need for a balanced mind becomes increasingly apparent to the physician, whether general practitioner or specialist, who is forced to deal with the symptom complexes brought about by the influence of the emotions upon the bodily functions. Unfortunately most medical books deal with the problem from one angle or from the other, but fail to keep the necessary balance between the psyche and the soma.

This book, written in collaboration by an internist and a psychiatrist, keeps the balance between the two extremes well. Richly illustrated with actual case reports, it is a real aid to the family doctor who is confronted with a woman who has developed severe digestive or cardiac symptoms since her husband or son went to the army. No attempt is made to draw a sharp line of demarcation between physical and mental disease, but it is recognized that many patients present both components. The book lives up to its subtitle, "The Clinical Application of Psychopathology to General Medical Problems."

The Pathology of Trauma. By Alan R. Moritz, M.D., Professor of Legal Medicine, Harvard Medical School. 386 pages with 117 illustrations. Price, $6.00. Philadelphia: Lea and Febiger, 1942.

The contents of this volume should be of great interest to physicians living in this traumatic age. The title of the book, however, is misleading. This treatise presents the clinical conditions resulting from trauma, and uses pathological data to explain the mode of their development and to point out the reason for the possible after-effects. This is in marked contrast to the usual accumulation of morbid anatomical facts so characteristic of books dealing with pathology.

The first portion of the book deals with the general fundamental pathological processes associated with various agents of trauma and the response of tissues to these agents. Discussions of the peculiar responses of the special organs and systems of the body to traumatic agents comprise the bulk and remainder of the volume. The neophyte in the field of legal medicine will find the discussions on drowning and the various types of assault to be clear, concise, and sound. Just enough statistical data are presented to give the reader an idea of the frequency of the injuries and their sequelae. The photographs, microphotographs, and diagrams are excellent. References for more detailed study are placed at the end of each chapter.

The Pathology of Trauma is heartily recommended to anyone interested in the effects of trauma on the body. All coroners, medical examiners and pathologists should be acquainted with its interesting content.

Obstetrical Practice. By Alfred C. Beck, M.D., Professor of Obstetrics and Gynecology, Long Island College of Medicine; Obstetrician and Gynecologist-in-Chief, Long Island College Hospital, Brooklyn. Ed. 3. 950 pages. Price, $7.00. Baltimore: The Williams and Wilkins Company, 1943.

Obstetrical Practice by Alfred C. Beck is a well written, well illustrated manual, covering the essential aspects of obstetrics. The chapters on the mechanism of labor are worth the price of the book alone, for every step is so simply explained and so well illustrated that no student could fail to understand the underlying principles of obstetrics. The section on operative obstetrics has been completely rewritten so that the practitioner as well as the student may obtain a clear concept of the purpose and technique of each procedure.

This presentation of obstetrics is far superior to most textbooks on this subject for use in medical schools, because it is so simple, understandable, and intensely practical. For this reason it is highly recommended for teaching purposes and for students, although it is not as satisfactory as other textbooks for the library of the specialist.

Indigestion: Its Diagnosis and Management. By Martin E. Rehfuss, M.D., Professor of Clinical Medicine, Jefferson Medical College, Philadelphia. 556 pages, illustrated. Price, $7.00. Philadelphia: W. B. Saunders Company, 1943.

This long-expected book represents the essence of the author's thirty years of experience in dealing with gastro-intestinal disorders. As the author states in the preface, "This book is written for the general practitioner. He is the clearing house for all the ills of the flesh, not the least of which is indigestion." The book is written simply and clearly, and is eminently practical. A valuable feature is the number of prescriptions that the author has tested and found good.

While surgery is advised in certain conditions, the treatment described is purely medical, and most of it can be carried out in the home.

One debatable chapter is that on x-ray examination. In this Dr. Rehfuss urges that every physician interested in the study of gastro-enterology learn to fluoroscope his patients, and to make and interpret x-ray films. Unquestionably Dr. Rehfuss is a master of his chosen field of gastro-enterology, and doubtless he is accomplished in x-ray technique; but it is questionable if every medical man should be encouraged to own and operate an x-ray outfit. Another doubtful point is the quasi-endorsement of Larostidin, a histidin product, of which it is said: "In our experience success was obtained in 66 per cent of cases, but after several years there was a recurrence in two-thirds of the cases." Certainly this is a far happier experience than most men in this vicinity have had.

As a whole, Dr. Rehfuss has made a notable contribution to the field of gastro-enterology, and his book can be recommended heartily to the internist and general practitioner.

There are one and one-half times as many deaths from tuberculosis among men as among women. The preponderance of deaths among men is in the older age groups, the reverse is true among women. Mary Dempsey, Nat'l Tuber. Assn.

The 1942 Year Book of General Therapeutics. Edited by O. W. Bethea, Ph.M., M.D., F.A.C.P., Professor of Clinical Medicine, Tulane University School of Medicine. 512 pages. Price, $3.00. Chicago: The Year Book Publishers, Inc., 1943.

Medical literature is so abundant that even in normal times it is virtually impossible for most physicians to cover the fields of their own particular interest, much less those of the subject as a whole. The volume under consideration serves a most useful purpose in presenting within the confines of a single small volume an epitome of the advances made in general therapeutics during the past year as gleaned from the literature. The book can be recommended to all general practitioners desirous of acquainting themselves with the many advances recently made in the treatment of disease.

The 1942 Year Book of Neurology, Psychiatry and Endocrinology. Edited by Hans H. Reese, M.D., Professor of Neurology and Psychiatry, University of Wisconsin Medical School; and Nolan D. C. Lewis, M.D., Professor of Medicine, University of Wisconsin Medical School. 768 pages. Price, $3.00. Chicago: The Year Book Publishers, 1943.

This volume of the Year Book series summarizes in abstract form the literature on neurology, psychiatry and endocrinology which appeared during 1942. Subjects of current interest such as the treatment of migraine, the significance of urinary ketosteroids, meningitis, war psychiatry and hundreds of other matters of practical importance are clearly and succinctly analyzed. The inclusion of endocrinology in this volume seems to the reviewer somewhat incoherent, but since this subject is treated in a separate section, it adds to the usefulness of the volume as a whole. The book should prove of greatest value to the general practitioner in keeping him abreast of advances in these fields of medicine.

The Hormones in Human Reproduction. By George W. Corner, Director, Embryological Laboratory, The Carnegie Institution of Washington. 265 pages with index. Price, $2.75. Princeton, New Jersey: Princeton University Press, 1942.

This book, which was a recent Scientific Book Club selection, represents the substance of the Vanuxem Lectures given by Dr. Corner at Princeton University. The lectures were written for a lay audience and the result is eloquent evidence of the possibility of presenting in a simple manner so complex a subject as the endocrinology of the reproductive system. To the reader who has despaired of mastering the complexities of the sex hormones and the physiology of reproduction, this book will be a pleasant revelation.

Every hospital patient who produces sputum, regardless of his diagnosis, should at least have his sputum examined for tubercle bacilli. A tuberculosis-conscious medical staff will order more x-ray films of the chest, especially among the groups of patients in whom the disease is more prevalent. The hazard of exposure from the hidden cases of tuberculosis on the wards of general hospitals will remain until such time as fluorograms are used routinely in the admission departments. Jason E. Farber, M.D. and Wm. T. Clark, M.D., Amer. Rev. of Tuber., Feb. 1943.

Where there is no seed, there can be no harvest regardless of the type of soil. Elimination of open tuberculosis from the community means ultimate eradication of the disease. Obviously any program for tuberculosis control must include finding not only the infectious cases but also those in the non-contagious or minimal stage of the disease. With the dramatic and popular appeal of special tuberculosis case finding, one is apt to ignore the basic principle of the epidemiology of tuberculosis. The longer and the more intimate the exposure, the greater the risk of the exposed person regardless of age level. Hilbert Mark, M.D., Amer. Rev. of Tuber., Aug. 1942.

Clinical Evaluation of 'Seconal Sodium'

During the course of a year, Dietrich (Anesth. & Analg., 22:28, 1943) attempted to evaluate 'Seconal Sodium' (Sodium Propyl-methyl-carbinyl Allyl Barbiturate, Lilly) as a sedative in general pediatric practice. Over 3,700 doses of the drug were administered to more than 500 children and infants, both private and ward patients, without any untoward effects on pulse, temperature, blood pressure, or cerebrospinal fluid pressure. The drug proved to be an excellent general sedative possessed of some analgesic action, and in tetanus and in the performance of certain otherwise painful procedures where a general anesthetic was not desirable, such as pinch grafts, lumbar punctures, myringotomies, and incision and drainage of minor abscesses, it was of particular value.

When the age of the patient and freedom from gastric symptoms permit, 'Seconal Sodium' should be given by mouth. When administered by rectum, however, its action is only slightly retarded. The intact capsule may be inserted in the manner of a suppository by first pricking each end of the capsule with a pin; or, where fractional doses are desired, the powder may be suspended in tap water and given by rectum with a small syringe.

Dietrich found that for good sedation in children of average nutrition the following doses were appropriate: 1-3 months, ¼-½ gr. by rectum; 3-6 months, ½-¾ gr. by rectum; 6-36 months, ¾-1 gr. by rectum; 3-8 years, ¾ gr. by mouth or ¾-1½ grs. by rectum; 8-15 years, ¾-1½ grs. by mouth or 1-1½ grs. by rectum. For very deep sedation or for light analgesia some increase in dose may be necessary. Any dose in this schedule may be repeated safely once within an hour if the desired result is not obtained, or may be given with impunity every 3-4 hours if circumstances demand prolonged sedation.

During Food Shortages

It is well to bear in mind that **dried brewers yeast, weight for weight, is the richest food source of the Vitamin B Complex.** For example, as little as 1 level teaspoonful (2.5 Gm.) Mead's Brewers Yeast Powder supplies: 45% of the average adult daily thiamine allowance, 8% of the average adult daily riboflavin allowance, 10% of the average adult daily niacin allowance.

This is in addition to the other factors that occur naturally in yeast such as pyrodoxin, pantothenic acid, etc.

Send for tested wartime recipes, the flavors of which are not affected by the inclusion of Mead's Brewers Yeast Powder. Mead Johnson & Company, Evansville, Ind., U. S. A.

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PRESIDENT'S ADDRESS

THE IMMEDIATE RESPONSIBILITY OF ORGANIZED MEDICINE

Donnell B. Cobb, M.D.

Goldsboro

General social security expansion has captivated the imagination of many who believe that a complete post-war national reorganization is necessary. Arguments over socialized medicine and federalized medicine persist, and continue to produce considerable confusion in the minds of the public and the medical profession alike.

For some years now, there has been available in our state, and in many other states, socialized medicine. In our state, this has been sponsored by the Medical Society of the State of North Carolina and by the North Carolina Hospital Association through the medium of the North Carolina Hospital Saving Association. In other states similar groups have been supported by their state medical and hospital organizations. These service associations were set up to provide hospital and professional services on a prepayment plan. Such systems operate on a voluntary basis, allowing free choice of hospital and free choice of physician, preserving the cherished patient-doctor relationship, and defending and maintaining freedom of action and initiative. This plan should offer to the people the highest type of service in its most desirable form.

Why then, in the face of this, do we hear a demand for the federalization of medicine, under which all of the above desirable factors would be lost? Are we not making medical service available as extensively as we should, or is it simply, as Dr. Van Etten, past president of the American Medical Association, has said, that "We are failing to present a clear and convincing picture of our organization"—of what we are doing; of what we are offering?

Unquestionably the handwriting is on the wall: The people want, or think they want, a type of medical service that they are not getting, or think they are not getting. This applies not alone to our country but to all English speaking nations.

The New Zealand government now offers a general medical service to its people. Although the British Parliament has refused to consider the Beveridge report at this time, Prime Minister Churchill, in his last address dealing with post war problems, promised that after the war England would have a National Health Service. The poll released by the Canadian Institute of Public Opinion a year ago showed that "eight out of every ten Canadians are in favor of a National Health Plan for medical care and hospitalization, sponsored by the government." The Canadian Government has already taken steps that may well place all medical service under government supervision and control.

In our country:

(1) The recent poll of opinion by *Fortune Magazine*, which included all income groups and all sections of the country, showed that three out of four are in favor of "medical care for every one who needs it."

(2) Our Social Security Board believes that "measures to assure adequate medical

Read before the First General Session, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

care to all who need it and to protect workers and their families against cost of medical care are of basic importance to Social and National Security." It is clear that the goal of this Board is a nation wide system of compulsory sick insurance.

(3) Organized labor appears to be solidly behind social security expansion. Its legislative manifesto recommends the establishment of "a national health program which would include insurance for medical care on a Federal basis covering all persons and families, with free medical care to those who cannot afford insurance."

(4) The United Automobile Workers have established a Health and Accident Department with a professional staff to provide diagnostic and advisory service for its members.

(5) It has been proposed before the National Association of Manufacturers that one of its major objectives in the post war period be the provision of complete medical care for its workers as a means of increasing their productive efficiency.

(6) The Farm Security Association, which for some time has been dictating to the physicians what they should receive for medical services rendered its clients, now expresses the desire and intention to extend this prepaid medical service to all farm families.

(7) Maternity care is now being expanded, by means of funds made available through the Children's Bureau, to provide hospital care for all prospective mothers who are not able to defray this expense for themselves.

(8) Some state party leaders advocate the establishment of a state medical program under which all citizens would be able to receive complete medical service plus a small income during periods of disability. One has gone so far as to say that "the time will come when medical care will be as free as the air. It will be one of our greatest utilities."

(9) Our President has proposed widespread federal insurance against hospital costs, and in his budget message of January, 1943, declared that "The essentials for civilian life also include a good standard of health and medical service—in war time as well as peace." And he recommended "hospitalization payments beyond the present benefit program." In a more recent report which he submitted to Congress, it is stated that we must see to it that all our people "enjoy a state of buoyant health and vigor."

(10) Our government has embarked upon a vast scheme of medical education. It is now proposed that the training of our future physicians be paid for entirely with the tax-payers' money, in spite of the fact that, for years, every decent medical school has been flooded with applicants able and anxious to pay for their own education.

(11) Brigadier General Frank T. Hines, administrator of veterans' affairs, states that a ten year hospital expansion program is under way and is being accelerated.

The greatly increased civilian hospital facilities that are being provided throughout our country, by means of federal aid, will not be allowed to go to waste. Neither will the many permanently constructed military hospitals be permitted to lie idle after their present emergency need has passed. These thousands of additional hospital beds will be utilized, and it is indeed possible that they will be administered under federal supervision and control.

We know that medical and hospital care has, for years, been available, in most places, much more widely than it has been sought or accepted. We know, too, that although there are frequent complaints about the cost of medical care, the people spend $200,000,000 more yearly for tobacco than they do for both medical and dental care. We should realize, however, that medical and hospital service is going to be expanded and that some ways and means will be provided for the people to use this increased service.

The practice of medicine, as we have known it, is undergoing profound changes and at an accelerated pace. For doctors to assume an uncooperative or negative attitude will mean that someone else will effect these changes and in a way that will not be most beneficial to the people. Any efficient alteration in medical service must have the active and guiding cooperation of the medical profession.

Our profession has never been opposed to efforts of the government to aid the diseased. It has always approved such efforts when they are legitimate and sound. It has always supported government hospitals where private facilities are lacking. It has consistently supported government medical aid to those afflicted with mental and nervous diseases, to patients with tuberculosis, and to cripples. It has always worked with and supported the long established and efficient



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Public Health Service. Since 1874, the American Medical Association has repeatedly urged the establishment of a Federal Department of Health with a Secretary who shall be a Doctor of Medicine and a member of the President's Cabinet.

In the short span of one hundred and fifty years, American medicine has moved forward to a position of universally recognized world leadership, and Americans have become the healthiest, longest-lived people on earth. Today the people of our country are receiving the best medical service the world has to offer. The death rate is the lowest in the history of the United States, and the average life expectancy has been almost doubled since the Civil War. North Carolina has the lowest death rate of any state east of the Mississippi. And yet, if we read the signs aright, the people desire some change.

In considering this inevitable expansion of medical service, which is now only just beginning, let us bear these thoughts in mind:

(1) Of the 50,000 to 60,000 physicians who will have been in the armed forces, a large part will return to competitive civil practice. Many of these will be young men who entered the service of their country directly from their internships, and who have never had a practice to which they may return. Many others will find that their practices have been entirely dissipated during their absence, and they may welcome the security of an assured salary from the federal government rather than face the inconveniences incident to the years of rebuilding a practice and re-establishing themselves in their chosen community. It may not be difficult for these men who have served their nation, and the nation they have served, to meet on common ground, and with a common understanding, continue to cooperate to the fullest extent.

(2) If the war continues for many more years (and there are those authorities who think it will) might we not find our democratic form of government leaning even more towards bureaucracy? Dictators and bureaucrats rarely deign to take the advice of bodies like the medical profession. How different it would be to be told exactly what to do, whom to treat and when to treat them. And the people, too, might derive a real sense of security during these troublous times and during the post war restabilization, from the knowledge that a definite National Health Plan had become crystallized, just as they would feel a sense of security if anything of a definite and concrete nature could be assured them.

(3) Because of popular and political appreciation of the fact that the cost of medical care so often comes at a time when one is incapacitated and, therefore, least able to bear it, there has been an increased growth of health insurance plans, both commercial and those sponsored by the hospitals and the physicians.

(4) Unquestionably medical service as a field for organized and political action has made its impress upon both voluntary and governmental bodies.

It is, therefore, of vital importance that we, as individual members of the medical profession and as the organization representing our profession in our state, realize that:

(1) We are facing a demand for an expansion of medical and hospital service.

(2) While we may be more conscious of this change by reason of certain recent pronouncements and actions of our national government, it, nevertheless, stems from the ideas and expressed thoughts of the people with whom we live and work and whom we serve.

(3) While most people can well afford hospital and professional care they often lack the foresight to be financially prepared to meet these obligations when they fall due. What these people need is the opportunity and convenience of prepayments.

(4) For any expansion of medical service to be effective and to benefit the people materially, it must have the understanding, support, and active participation of the medical profession.

Our best medical thought must aid in the development of any wise and sound social security plan. Our medical leaders must cooperate with and guide these changes and developments in so far as they pertain to medical service. To assume an indifferent and negative attitude will not only affect our profession adversely; it will result in the people's receiving an inferior type of service, and possibly on a purely political basis. We must see to it that medical science does not become a great new field for political patronage. We must see to it that the independence and freedom of medicine, free choice of physicians, and hospitals, free initiative and free

enterprise, which are the basis of scientific advancement, remain an integral part of our American way of life. As Dr. James B. Conant, President of Harvard University and Chairman of the National Defense Research Committee, expressed it, we must bear in mind during this world war for "the freedoms" that "three paths of development —political freedom, free enterprise and science—run parallel," and that "if we value a continuation of scientific advance, we can not fail to be concerned for the preservation of both free initiative and free democratic institutions."

It is the duty of organized medicine to lead the way to any improvement in medical service that is needed. Only by doing this can we prevent undesirable and inefficient social changes from being brought about under the pretense of a medical emergency. Only in this way can we keep the federalization of medicine from becoming an actual fact under the guise of national defense.

If a better and more easily available hospital and medical service is needed—and it is the expressed opinion of our people that it is—, then it is our responsibility to see that it is provided. An obstructive attitude on the part of organized medicine can only mean that a dictatorial, political and inefficient type of medical service will be offered the people. A cooperative attitude on our part should mean that the people can continue to receive the same high type of service to which they are accustomed, and, if need be, on a broadened scale.

Does it not behoove the organized medical profession of our country to furnish the leadership in any move that will truly improve the health of our people, that will make for greater productivity, that will lessen disability, and that may, in any way, alleviate the financial stress of sickness? Is it not wise for us to have a spirit of cooperation? It is true that it is our service that is at stake—that is for sale, if you will. But it is also true that the public which needs this service is vitally interested in how it is rendered. We have always welcomed public interest in the management of our hospitals, in the management of our own service organizations. We should not be indifferent to public interest in any plans for a better medical service. It is our duty not to antagonize, but to show and lead the way.

Does it not behoove us in this state to combine our efforts and our organizations at once, so that all hospitals and all doctors may not only endorse, but enthusiastically support an enlarged and increasing service to our people? Does it not behoove us to make this service available to our people as quickly as possible and as comprehensively as possible—that they may have this service on a voluntary basis; that they may retain free choice of hospital and free choice of physician; that the sacred doctor-patient relationship may be retained; that free initiative, free enterprise, and freedom of action may be preserved?

Or shall we remain indifferent, allowing our government to provide and offer medical service as it sees fit and without our guiding help? Such a service, just as any other, must be paid for by the people. Instead of being on a voluntary basis, however, it would be entirely involuntary, through taxation for compulsory health insurance. It is not likely that such federalized hospital and medical care would permit freedom of choice by the patient, the hospital, or the doctor.

Our government is rapidly making clear what it intends to offer. Have we failed to paint a clear and convincing picture of what we have offered, or have we been offering too little? If the people are given the opportunity of an immediate choice between federalized medical service and voluntary medical service on an expanded scale, in which they will retain freedom of preference for hospital and doctor, none of us can doubt what their decision will be. If we are to retain our medical freedom we must now unhesitatingly accept the responsibility of our independence, and offer and render the best medical service the world has to offer. As Dr. Welch has said, "after all the interest of the people will decide the matter."

National social and economic changes are altering the lives of all of us. Situations confronting us today are vastly different from those of twenty-five years ago. We, as American citizens, have the right to be heard, and the medical profession has the responsibility to make itself heard. This can best be done by establishing and maintaining in the seat of our government intelligent, courageous, courteous, and authorized representatives of American medicine. It should be their duty to offer counsel and provide accurate information to those in whom constitutional authority is vested. Such coop-

eration should make possible any wise and necessary expansion of medical service and at the same time maintain the present high standards of efficiency to which American medicine has risen.

As Dr. W. J. Mayo said, "How can laymen be expected to accept (wise) legislation for the regulation of medical practice when most of the information they receive about medical matters comes to them from the advertisements of patent medicine vendors and voluble charlatans?" They might accept such legislation for medical regulation, it is true; but unless they are informed they will accept it in ignorance and with a lasting regret. In his address as President of the American Medical Association Dr. Mayo stated that, "If we wish better results, we must enlighten the people (and the authorities) for with them lies the final word." A determined continuation of our past complacency is neither good for us nor good for the people we serve.

Let us lead the way to a greater and ever better medical service and, in the words of our Governor, let us see that we do not "fail to meet the challenge of the new day."

And now to you, gathered in full meeting, I must take this, my first opportunity, to express my sincere appreciation for the confidence, the honor and the friendship which election to this office implies and which I have done so little to deserve.

Being your president has been a most pleasant undertaking, but not an easy one. It would have been impossible to function at all without your constant cooperation and advice. I trust that the duties of this office have been discharged in a way so as not to reflect discredit on our profession or on our organization, but rather to commend our profession and our organization to the citizens of this commonwealth.

Opposition to Totalitarianism.—Opposition to totalitarianism is not merely because it attacks man's rights but also because it suppresses his personality. Individuality is the kernel of democracy, the biological basis of the struggle for freedom. When we fight for individuality we fight on the side of nature. Recognition of individuality and all that it implies especially concerns us as scientists. Even if science were again persecuted and driven under cover, as it was in the middle ages, there would still be some brave inquiring minds. But science can not flourish without freedom of thought and its expression.—Albert Francis Blakeslee: Individuality and Science, Science 95:7 (January 2) 1942.

PSYCHOTHERAPY WITHIN PSYCHOSOMATIC MEDICINE

MAURICE H. GREENHILL, M.D.

DURHAM

Some day it may be said that internal medicine and psychiatry started at opposite poles and finally arrived at the same conclusion. It may then be universally recognized that the gastro-enterologist, dealing with peristaltic function and gastric acidity, the neurophysiologist, fortified with specific knowledge of the effect of the hypothalamus upon gastric function, and the psychiatrist, treating a patient who has made a suicidal attempt after a long history of epigastric pain and recurrent depression, have been concerned with different manifestations of the same entity. Today psychosomatic medicine is the common meeting ground of psychiatry and all the other branches of medicine. Tomorrow it may be realized that all medicine is psychosomatic medicine. There is some evidence to show that the trend is in that direction. Those medical men who still think in terms of the medieval conception of body and mind actually have difficulty in perceiving the meaning of psychosomatic medicine. These are the men who still think in terms of "functional" and "organic", despite the evidence culled during the twentieth century that no disease is either functional or organic, but that all diseases display disturbed function, that most produce altered structure, and that if in certain instances present technical methods cannot demonstrate any material change in tissues affected, nothing as yet can with finality rule out pathological changes in the involved organs. They forget that meningococcus meningitis was at one time classified as hysteria. To these men the conception of mind differs little from that of the priest's conception of the soul, with this difference: To the priest the soul is potentially good, the body latently evil; while to the physician the body is good, and the soul potentially evil, since it tends to trick the body and may interfere with the physician's treatment.

On the other hand, those who realize that

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physiology, structure, and psychological function are all facets of the same organism are psychosomaticists. Psychosomatic medicine may be defined as that part of medicine which deals with the psychiatric component of medical disorders and with the medical component of psychiatric disturbances. The definition of Franz Alexander[1] that "Psychosomatic disturbances are the localized peripheral manifestations of changes in the emotional balance within the total personality" is too restricted. It neglects the changes in the emotional balance resulting often from localized peripheral manifestations. The scope of psychosomatic medicine is indeed very broad.

If one studies the literature of recent years in psychosomatic medicine, one finds that investigators have included the following types within this realm of medicine: (1) Those medical disorders in individuals who have a specific personality make-up. It has been shown, for example, that patients with thyrotoxicosis, gastric ulcer, diabetes, obesity, coronary disease, essential hypertension, repeated fractures, delirium with cardiac disease, and anorexia nervosa have characteristic personality patterns which figure prominently in either the etiology or precipitation of the medical disorder. (2) Those medical disorders which carry with them a specific type of behavior produced by physiological and psychological changes during the illness. This in turn may influence the medical disorder. Once a patient has ulcerative colitis, thyrotoxicosis, essential hypertension, coronary disease, hyperparathyroidism, or cardiac decompensation, he in most instances will show during his illness a type of behavior which is specific to that particular illness. In some instances this behavior is so disturbing to the organism that the medical disorder may be enhanced. (3) Those medical disorders which may leave a characteristic, residual psychiatric defect. Lindemann's cases of post-gynecological surgical depression are examples of this group. He described[2] a series of cases in women who, following pelvic surgery, developed a particular kind of depression. Another group of cases which falls into this category is made up of those individuals who after long debilitating illnesses develop warping of the personality which sometimes is so severe as to be called a psychosis. These would include cases of deafness, blindness, fecal fistulae, and severe rheumatoid arthritis. For want of a better name, this last type of case might be called somatic compliance, indicating that the entire personality revolves itself about and complies with the somatic disturbance. (4) Temporary personality alteration during physiological and endocrinological changes. For example, at one phase in the menstrual cycle most women exhibit some degree of tension. Among other conditions in this group may be listed diabetes, coronary disease, anorexia nervosa, and hyperparathyroidism. According to Albright[3], one of the first indications of hyperparathyroidism may be irritability and fatigability. (5) Those instances in which changes in the personality may effect physiological, endocrinological, and even anatomical changes. Anorexia nervosa is the best example of this group. The young girl with this condition, following her poor eating habits, may develop panhypopituitarism, embodying first endocrinological and later anatomical changes. (6) Those medical disorders, the etiology of which seems to be predominantly psychiatric and which usually show histopathological changes. These are often called psychosomatic syndromes. In this group have been included mucous colitis, gastric ulcer, neurodermatitis, rheumatoid arthritis, bronchial asthma, migraine, dysmenorrhea, hyperemesis gravidarum, and others. Each of these psychosomatic disorders occurs in individuals with specific psychological characteristics. The so-called psychosomatic syndrome may in turn further influence the psychological characteristics. (7) Almost all medical illnesses; for these and all psychosomatic disorders may be precipitated by an emotional disturbance. The literature corroborates the impression of many clinicians that thyrotoxicosis, coronary disease, paroxysmal auricular tachycardia, ulcerative colitis, glaucoma, gout, essential hypertension, diabetes, multiple sclerosis, and lupus erythematosus are precipitated by emotional upheaval. (8) Certain medical states which occur as part of psychoneuroses. Sexual impotence in the male, vaginismus, dysmenorrhea, and abdominal pain are examples of this group. Also included would be possible

1. Alexander, F.: Psychological Aspects of Medicine, Psychosom. Med. 1:7-18 (Jan.) 1939.
2. Lindemann, E.: Observations on Psychiatric Sequelae to Surgical Operations in Women, Am. J. Psychiat. 98:132-39 (July) 1941.
3. Albright, F.: Postgraduate Seminar in Endocrinology, Harvard Medical School, 1940.

altered physiology in hypochondriasis. (9) Those conditions in which structural and physiological changes are misinterpreted by the individual in terms of his psychological problems, setting up somatic delusions. Acoraphobia secondary to senile pruritus is a case in point.

The Matter of Terminology

With the many types of disorders enumerated above involved in the field of psychosomatic medicine, it is obvious that the terminology applied to this field might make for confusion. It is to be understood that psychosomatic medicine is that part of the science of medicine which deals with the psychiatric component of medical disorders and with the medical component of psychiatric disturbances. Within this definition fall several types of disturbances which can be called psychosomatic disorders. One of these groups stands out in the field of psychosomatic medicine by virtue of the obvious importance of the psychological component, and this group has been designated as psychosomatic syndromes. Such clinical entities as bronchial asthma, neurodermatitis, migraine, and mucous colitis are examples of psychosomatic syndromes. "Psychosomatic disorders", therefore, include the several sub-groups of disturbances which fall within the realm of psychosomatic medicine, whereas the term "psychosomatic syndromes" is used in reference to one specific sub-group.

The Psychosomatic Syndromes

Although physicians for centuries have been concerned with the emotional states of their patients and have realized that a turbulent mind often interferes with therapy, decelerates, or completely blocks the return to health, sometimes leading even to death, the exact manner in which disturbed feelings act upon the sick organism has never been known. Within the past few years interest in the so-called "psychosomatic syndromes" has led to a beginning in the understanding of the mechanisms involved in the production of histopathological changes by a psychological disturbance. It may properly be stated that most physicians recognize that there is a large psychological element present in cases of mucous colitis, gastric ulcer, neurodermatitis, rheumatoid arthritis, bronchial asthma, and migraine. Some believe that the psychological state is entirely responsible for these diseases; others that the psychological state is either secondary or contributory in these illnesses. But to both groups the psychological element became so obvious that certain ones among them were compelled to study these entities more intensively by the psychological approach. During the past decade a considerable mass of literature, mainly the contribution of internists and psychiatrists, has appeared on these subjects. The field, it may be said, is relatively embryonic, so that much diversity of opinion exists; but one finds in perusing the literature that certain characteristics of the psychosomatic syndromes appear again and again. No one has seriously and critically reviewed the literature since Flanders Dunbar, and most of the advances in this field have occurred since the publication of her book, EMOTIONS AND BODILY CHANGES[4]. A critical review of the literature and a synthesis of the available data at hand would show that there is a unanimity of opinion on the following characteristics of the psychosomatic syndromes: (1) These are disorders of which the etiology seems to be predominantly psychiatric, or in the precipitation of which emotional factors figure the most prominently, and which usually show histopathological changes. (2) They are chronic disorders marked by exacerbations and remissions. (3) The exacerbations are often produced by emotional disturbances. (4) A large proportion of the patients with these disorders have a history of neurotic symptoms. (5) There is a specific personality pattern involved in each one of these disorders. (6) Tension symptoms are almost always present.

The Mechanism of the Exacerbation

The patient suffering from one of the psychosomatic syndromes is an individual with a specific personality pattern in whom some degree of internal conflict exists. The severity of the peripheral manifestation is proportional to the degree of internal conflict. In many instances the personality pattern is so distorted that character disturbance exists. This implies the necessity of long and intensive psychotherapy if the psychosomatic syndrome is to be alleviated.

In the internal conflicts of these patients

4. Dunbar, H. F.: Emotions and Bodily Changes, ed. 2, Columbia University Press, 1938.

Fig. 1

THE PSYCHOLOGICAL DETERMINATION OF NEURODERMATITIS

(THEORETICAL PSYCHOGENIC BASIS)

CONFLICT → GUILT → SELF-PUNITIVE → SELF-INFLICTED INJURY TO SKIN
and/or
CONFLICT → GUILT → SYMBOLICAL REPRESENTATION IN THE SKIN (Blushing)
(Scratching as Masturbatory Equivalent)

feelings of inadequacy, aggression, tension, and depression are present. Most investigators who have studied the personalities of these individuals find that they have tendencies toward a compulsive-obsessive make-up, with obsessive ideas of cleanliness, punctuality, strong conscience, tendency toward inflexible ideas, and perfectionism.

The exact mechanism whereby the exacerbation of somatic disease can be precipitated by the internal emotional conflict is as yet a matter of speculation. Investigation into this mechanism is typified by the studies on neurodermatitis. Investigators have been divided into two camps regarding the etiology of this condition. There are on the one hand the proponents of the psychological determination of the symptom, who contend that the dermatological manifestation is a symbolic representation of the internal conflict of the individual. This may be represented as in figure 1.

The second group consists of the dermatological school, who either believe that the disease occurs in individuals of weak constitutional endowment who break down in fatigue while attempting to compensate for that weak endowment[5], or who deny entirely the psychological components[6].

It must be recognized that the psychosomatic syndromes are neither purely psychological nor purely medical, but are both psychological and medical. This is all the more evident from the fact that psychological disturbances are not the only precipitating factors in the exacerbations of these diseases. For example, with neurodermatitis, allergens, infection, or trauma as well as an emotional disturbance, may produce an exacerbation. The exacerbation may be represented as in figure 2.

5. (a) Stokes, J. H.: The Personality Factor in Psychoneurogenous Reactions of the Skin, Arch. Dermat. & Syph. 42:780-796 (Nov.) 1940.
(b) Becker, S. W., and Obermayer, M. E.: Modern Dermatology and Syphilology, Philadelphia, J. B. Lippincott Co., 1940, pp. 152-167.

6. Sulzberger, M. B., and Goodman, J.: The Relative Importance of Specific Skin Hypersensitivity in Adult Dermatitis, J.A.M.A. 106:1000-1003 (March 21) 1936.

Recently Greenhill and Finesinger[7] have shown that depression, feelings of hostility, and tension are so universal and striking in patients with neurodermatitis that the effects of these emotional states on the organism might be more carefully studied and are possibly directly related to the exacerbation of the lesion.

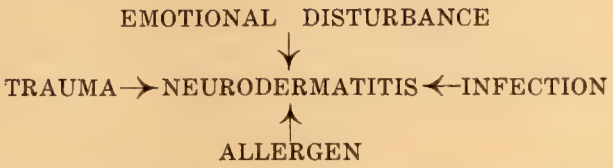
If one further considers the possibility that the disturbed emotional state of hostility, tension, and depression in some way upsets the organism so as to produce skin lesions, the implication is made that these disturbed emotions set up a physiological disturbance as yet unknown, which therefore may be designated as X, which in turn produces a pathological disturbance upon the end organ, the skin. Why the skin is chosen in one instance and the gastro-intestinal tract in another is likewise a mystery, and it can only be postulated that the weakest end organ breaks down first under the stress of the disturbed physiology.

Greenhill and Finesinger have also shown that patients with neurodermatitis respond with a disturbed emotional state to a problem situation involving internal conflict, whereas patients in their control group of lupus erythematosus cases often responded with exacerbations of their dermatitis to a disturbed emotional state arising from a problem situation in which there were real external factors such as loss of position or death in the family. By and large the individual with a psychosomatic syndrome responds with a somatic disturbance to internal psychological conflicts arising from some trivial external event, whereas an individual with one of the other psychosomatic disorders may find himself with strong feelings of depression and tension, leading to an increase in the severity of his illness, as a result of difficulty in handling an important,

7. Greenhill, M. H., and Finesinger, J. E.: Neurotic Symptoms and Emotional Factors in Atopic Dermatitis, Arch. Dermat. & Syph. 46:187-200 (Aug.) 1942.

Fig. 2

SOME OF THE PRECIPITATING FACTORS IN NEURODERMATITIS

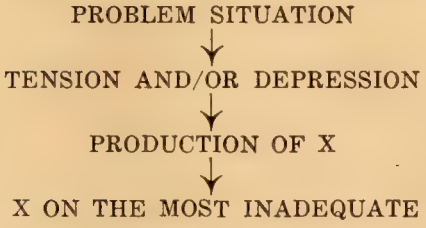


serious, real environmental situation. Between these two extremes are found many individuals with varying degrees of personality difficulties who respond with variable intensities to precipitating stimuli of greater or less importance. The greater the personality difficulty, the more minute the stimulus needed to set off the emotional discharge. At one end of the scale is the patient with essential hypertension unequivocally on an emotional basis. This individual for years responds with tension to trivial situations to which he could not feel adequate. At the opposite pole is the individual who has a coronary occlusion at the funeral of his wife. In between lie the mass of patients with essential hypertension and coronary disease who respond in different ways to their illnesses, dependent upon the degree of integration of their personality characteristics.

In general, then, it may be stated that the mechanism responsible for the exacerbation, the lesion, or the symptom in psychosomatic disorders is incompletely known; yet the idea has been advanced that the common emotional denominator consists of tension and depression, which in turn produce a physiological disturbance acting upon the most inadequate organ system. This may be diagramatically shown as follows:

Fig. 3

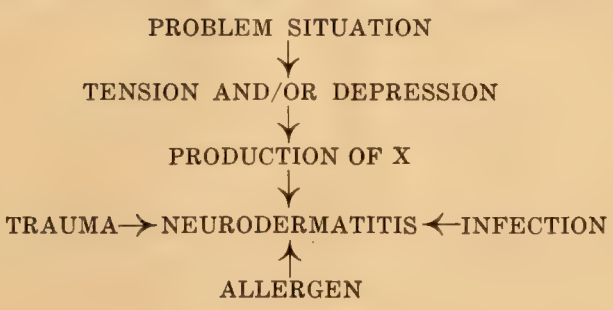
THE PRODUCTION OF SYMPTOMS IN PSYCHOSOMATIC DISORDERS



In one of the psychosomatic syndromes, such as neurodermatitis, all of the precipitating factors may be displayed in the following manner:

Fig. 4

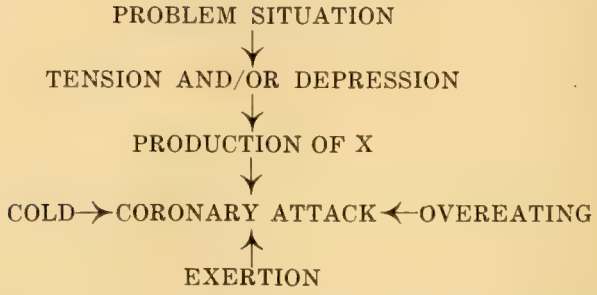
PRECIPITATING FACTORS IN NEURODERMATITIS



And in such an almost purely medical disorder as coronary disease, the following precipitating factors may be exhibited:

Fig. 5

PRECIPITATING FACTORS IN CORONARY DISEASE



Psychotherapy Within Psychosomatic Medicine

If one is oriented to the conception that certain diseases are precipitated by environmental events with an emotional connotation, that the psychological states set up in the situation are principally those of tension and depression, and that the individual's personality pattern is relatively specific for the illness involved, therapy by the psychological approach becomes rational and simplified. With many of these disorders, particularly in the case of the psychosomatic syndromes, the psychotherapeutic approach may be the only method of handling the patient's disease. This does not imply that therapy by medical methods should not be attempted at the same time, for usually the cure is a medical one, while the prevention of further exacerbation lies with the psychotherapist.

Psychotherapy within psychosomatic medicine is made up of three phases: (1) the handling of precipitating stimuli; (2) the handling of the tension state; and (3) the handling of the character disturbance. Each of these will be discussed in turn.

1. *The Handling of Precipitating Stimuli*: The stimuli which precipitate the exacerbation of a psychosomatic syndrome are usually of the same nature and are peculiar to the individual patient. That patient will react again and again to the same specific stimulus. By observing the patient through successive exacerbations or by prompting him to discuss what transpired in the environment during each past exacerbation, the physician is usually able to discover the precise stimulus. In the very sensitive individual with multiple psychoneurotic symptoms the stimulus may be nothing more than the patient's feeling that he has been slighted by some member of his family. With another patient the stimulus might be his impression that he cannot adequately cope with his emotional relationships with members of the opposite sex. With others any test situation may be a stimulus, as for example, in the following case.

Case I: The patient was a 27 year old graduate student who had suffered with atopic dermatitis periodically since infancy. He was the eldest son of a successful and wealthy father, and during his entire life he had entertained the impression that great things were expected of him. The father was a high-powered business man who himself suffered from essential hypertension and angina pectoris. He was always forceful, demanding, and exacting with the patient. Throughout his life the patient had had mixed feelings of respect, hostility, and fear directed toward his father. In his boyhood he was protected and even pampered by his very feminine, passive mother. She died of tuberculosis when the patient was 9, and his feelings of insecurity became strongly enhanced at that time. Anxiety attacks which he later had and difficulties in adjustment to women always reverted to his relationship with his mother.

The patient's psychological conflict had always revolved about his desire to be dependent and protected and his ambition to be strong and independent after the model his father set for him. In college he feared that he would not measure up to the father's demands, and his conflict placed one test sit-

uation after another before him. Before each college examination he usually had an exacerbation of his atopic dermatitis. Later he began a psychoanalysis which abruptly terminated when he had an unusually severe attack of dermatitis brought on by the feeling that the analyst was making demands upon him which he could not meet and was showing him how really dependent and passive he was. Whenever he could be forceful, active, and controlling with a woman, he was comfortable, but as soon as he found that he was becoming emotionally involved and dependent upon her, he would have an exacerbation. In graduate school he again had a severe attack while writing his Master's thesis for a professor who reminded him of his father.

It is seen that whenever this man with neurodermatitis found himself in a situation which tested his ability according to the demands laid down by an exacting father, or whenever he found himself in a situation of dependency, there occurred tension, depression, and serious hostility against his father, with the resulting formation of lesions.

The following case likewise illustrates the specificity of precipitating stimuli.

Case II: The patient was a 19 year old girl who had had mild recurrent attacks of atopic dermatitis during childhood, but none so severe as to require hospitalization. Between the ages of 17 and 19 she had unusually severe attacks of this cutaneous disease, three of which required hospitalization. The first serious attack was precipitated several weeks after the birth of an illegitimate child. It was found that each attack occurred when she took a new position as a domestic servant taking care of children. Prior to the birth of her child she had worked as a nursemaid without ill effect. It was found that she entertained ideas of hatred toward her child because it had made her life so unhappy, and that each time she was placed in a situation where she had to look after children she was reminded of her own strong feelings against her child. This caused her to feel guilty, depressed, and tense, and brought on the neurodermatitis.

Once the precipitating stimulus is discovered, the patient should be acquainted with it and shown by one example after another how it has operated in the past. The patient will then either avoid that stimulus, or if he is forced to meet it will better understand it and its reactions upon him and therefore will have better control over his emotional response to it. This is one aspect of psychotherapy within psychosomatic medicine.

2. *The Handling of the Tension State*:

A second phase in the psychotherapy of patients with psychosomatic disorders is the handling of the tension state. Almost all patients with these disorders display some manifestation of tension. Unfortunately there is not as yet an objective measure of tension, so that clinical criteria have to be used. The clinical signs and symptoms of psychological tension are: restlessness; fatigability; muscular aching, particularly at the nape of the neck and over the shoulders; low back pain; insomnia; dyspepsia; constipation; constriction of the throat; pruritus; irritability; and complaints of inability to relax. Tension states with their associated symptoms occur either in individuals with life-long difficulties who feel inadequate to almost every situation, and therefore are constantly on guard, or in persons involved in some type of recent problem which they cannot solve. Although both types of tension may be present in patients with psychosomatic disorders, it is with the handling of tension states related to recent unsolvable situations that we are here concerned.

The tension state of recent origin results from a conflict usually present for no more than two or three years. Tension, hostility, and depression are all phases of the same conflict. An individual finds himself in a difficult situation from which he cannot extricate himself. Such a person may act like a trapped animal. The man with the impossible employer who is forced to keep his position because of his financial obligations to a wife and several children reacts to this intolerable state with restlessness, constant muscular tension, fatigability, depressive feelings over his inability to solve the problem, and furious hostility against his employer, whom he would naturally tend to blame for the situation. In all tension states hostility is present, as well as some degree of depression. The following case is an example of a tension state occurring in an individual with one of the psychosomatic syndromes.

Case III: The patient was an attractive woman, aged 32, who had suffered for two years almost daily excruciating migraine

headaches. Prior to that time she had an occasional hemicephalgia associated with scintillating scotomata, nausea, and vomiting. She had been aware for some four years that her husband had seemed less interested in her and would stay away from home almost every night, using his business as an excuse. A headache would often follow quarrels with him, but she tolerated the general situation very well and was always hopeful that eventually her marital problem would work itself out. Two years ago she gave birth to a son who suffered a birth injury, with a resulting hemiplegia. At this the husband became even more distant and tried to avoid her and the crippled child as much as possible. The beginning of the frequent and particularly intensive migraine headaches dated from the birth of the child.

It was found that the patient was not as concerned about the crippled state of her child as she was about her husband's attitude toward it and toward her. She felt that as long as the child was there the husband might never again be close to her to fulfill her conception of marriage and would tend to blame her for the child's injury. Although her marital situation was intolerable to her, she had the impression that she could never make another relationship, because not only was she a Catholic, and not only did she feel that for the sake of their child, it would not be right to divorce her husband, but she also had the strong opinion that no other man would ever want a woman with a crippled child. She was therefore in a situation in which she felt trapped. She frequently felt depressed, and almost every day she had periods of furious internal rage against her husband. She was in a constant state of pronounced tension.

The first principle in handling a tension state within a psychosomatic disorder is to allow the patient to give vent to his hostility. Permitting such a patient to express his problems and his feelings about them over as brief a period as an hour's interview may dramatically relieve the tension and the associated symptoms. In most instances, if a patient with bronchial asthma, neurodermatitis, migraine, or one of the other psychosomatic syndromes is allowed through several interviews to ventilate his hostility against some individual who is a great concern to him, an improvement in the condition is observed.

The second principle in the handling of tension states is to give the patient enough insight to enable him to act to free himself from the situation in which he feels trapped. Occasionally the circumstances are such that it is impossible for the individual ever to be free; but in most instances the person is kept from acting only by his own individual problems. Such a person may feel so insecure within himself that he is fearful of finding himself in another situation which he envisions as possibly even worse. Some individuals are so dependent upon the person who has made the situation difficult for them that they are fearful of arousing that person's wrath. Sometimes the physician has to act on his own authority to bring to the attention of the person helping to produce the tension state in the patient the real facts concerning his role in the patient's discomfiture.

In individuals with long-standing psychoneurotic symptoms the tension state is usually the result of a character disturbance, rather than a recent problem situation. Nevertheless, these patients can be helped by allowing them to ventilate their hostility. Within the large field of psychosomatic disorders most cases of tension states, however, revolve about a recent situation which can be alleviated, both by allowing the patient to express his hostility and by assisting him in taking some action to free himself from the conflict.

3. *The Handling of the Character Disturbance:*

It has been shown that patients with psychosomatic syndromes have a specific personality pattern made up of compulsive-obsessive tendencies, profound feelings of inadequacy, unusual sensitiveness, and psychoneurotic propensities. In most of the other psychosomatic disorders and in many of the psychosomatic syndromes the release of tension and the patient's recognition of the precipitating stimulus suffices to give considerable relief. But with many of the cases of psychosomatic syndrome these methods are not enough, because of the deeply-rooted pathological personality problem involved. The case then becomes one for intensive psychotherapy over months' or even years' time, in which a re-education of the character is attempted. These cases usually, therefore, require psychoanalytical treatment.

The Results of Psychotherapy Within Psychosomatic Medicine

In mild cases of psychosomatic disorders—namely, those with very infrequent exacerbations— recognition of the specific precipitating stimulus and handling of the tension state may effect a cure. In general it may be said that the greater and more obvious the precipitating stimulus, the shallower the psychosomatic disorder, and therefore the better the prognosis. Such obvious precipitating stimuli usually imply a recent tension state which is far from insolvable.

These methods will also give some degree of relief in moderately severe psychosomatic syndromes. If suffering from a moderately severe disturbance of this type, the patient may not be entirely free of some exacerbations, but after twenty or thirty hours of psychotherapy it is usual for these patients to remark that although they still have their disease, the symptoms are neither as intense nor as prolonged as they were previously.

The patient with the severe personality disturbance has a dubious prognosis, even after months of therapy. However, since occasionally such a patient becomes noticeably improved, it is to be recommended that long, intensive psychotherapy be tried in severe cases, as the last hope of alleviating his suffering.

The Role of the Internist and the General Practitioner

The internist and the general practitioner obviously cannot afford twenty or thirty hours of discussion with the patient in the hope of palliating an illness which has been resistant to other forms of treatment. It will be profitable, however, for these physicians to look briefly for the specific precipitating stimulus and the associated tension state. If the stimulus is obvious and almost recognized by the patient, the psychological component in the psychosomatic disturbance is a relatively mild one, and there is a good chance for successful psychotherapeutic handling. In such instances it will not be necessary for the internist or general practitioner to refer the case to a psychiatrist. This is particularly true in cases with rare exacerbations or in those instances where the psychosomatic disorder occurs for the first time, as in thyrotoxicosis or coronary disease. It becomes good preventive medicine for the internist to keep such patients away from situations which provoke tension, depression, or hostility. Some situations may arouse annoyance, impatience, or diffuse "worry" in the patient, but the physician must be aware that only a set of circumstances upon which the patient verbalizes repeatedly with an obvious emotional charge and with the visible production of depression, tension, and resentment is of importance in his illness. Furthermore, if the psychological component is so complex that it evades the physician's attempts at treatment, at least the understanding of the nature of the psychosomatic disturbance will afford him better judgment in the handling of the case and will stay him from arousing increased tension and depression in his patient. For no matter how much he may try, no physician can avoid being in part a psychiatrist, and good psychiatry is often concerned with what *not* to do as much as with what *to* do. Such an approach will allow the physician to treat the whole patient, rather than merely a part of the patient, and will stamp him as a whole physician, rather than as half a doctor.

The Importance of Rest Periods. Industrial psychologists have found that the amount of rest and the frequency of the periods required for peak efficiency depends a great deal on the type of work being done. It should be carefully planned for each sort of job in a plant. In some work a compulsory ten-minute rest interval every two hours is best. In other types of work, it may be best to allow each individual to select his own time to take such a short rest period when he feels fatigued. According to the statement of the Government officials, "One scheduled day of rest for the individual, approximately every seven, should be a universal and invariable rule."

This does not mean any shut-down on Sunday. Plants and tools should be kept busy all around the clock and all around the calendar. But for the individual, a 7-day work week is injurious to health, to production and to morale, the statement emphasizes. Only in extreme emergencies should either workers or supervisors go without the weekly day of rest. Then it must be only for a limited time.

Psychologists would point out that this is even more important for the executive who does not need to punch a time clock than it is for the routine worker. The psychological effects of fatigue are insidious and treacherous. Enthusiasm for the war program and eagerness to do the job may keep an executive at his desk long hours and he may skip his weekly game of golf and his Sunday off. For a while that speeds the work. But after a while it becomes a little more difficult for him to make quick and sure decisions. Even more disastrous, against his will a sort of staleness may creep into his thinking. No longer is he eager to be at the job. No longer is he so sure of success.—Marjorie Van de Water: The Importance of Rest Periods, Science Supplement 96:7 (August 14) 1942.

THE HORMONAL APPROACH TO CARCINOMA OF THE PROSTATE

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PART II: CLINICAL STUDY

Carcinoma of the prostate is the dread of all aging men. Years ago, when life expectancy in the United States was around 50 years, carcinoma of the prostate was infrequently encountered. With the improvement of national health, the life expectancy of men, as recorded by the Metropolitan Life Insurance Company, has risen from 46.6 years in 1911 to 63.4 years in 1941[1]. Since this disease is one of old age, it claims a greater number of victims today than it did thirty years ago. Statistics show that its incidence as a cause of death increased from 0.8 per 100,000 in 1917 to 3.7 in 1928. While we cannot say positively that the condition is more prevalent today than it was in 1928, it is true that far more cases are seen now because of the increase in man's life expectancy. Pathological study of serial sections of the prostate, taken at random from autopsies of men over 50 years of age, showed small carcinomatous degeneration to be present in 18 to 21 per cent of the cases[2]. This incidence is much higher than was previously suspected.

Because of the slow, insidious nature of its growth, carcinoma of the prostate is usually not diagnosed until it has spread fairly extensively through the prostate and often outside the capsule to the seminal vesicles and surrounding structures. Several factors make an early diagnosis difficult: The growth usually does not produce urinary symptoms until considerable obstruction has occurred, and it progresses so slowly—unlike the soft adenomatous hypertrophy—that it may be a year or more before there is sufficient obstruction to produce symptoms. Many prostatic carcinomas start in the posterior lobe—farthest away from the urethra. Recent studies have shown that they often originate in the lateral lobes. The carcinomatous area is frequently hidden by an associated benign hypertrophy. Bumpus[3] found that in 65 per cent of his cases the urinary symptoms were mild. In 16 per cent of the cases in Bumpus' series the first symptom was pain referable to the metastatic growth. Often x-rays show the metastatic lesion in the bone before it is suspected.

Methods Employed in the Treatment of Carcinoma of the Prostate

Because of the difficulty of making an early diagnosis, operative cure of carcinoma of the prostate is rare. Young, whose radical operation offers the only possible cure, found it applicable in only 3.4 per cent of 1,040 cases[4]. The success of the radical operation depends upon the position and extent of the local growth, whether or not it is confined to the prostatic capsule, the age of the patient, and his general condition and ability to withstand a major operation. The operation is one of no slight magnitude, and in a certain percentage of patients operated upon, metastases later occur. Occasionally a patient develops urinary incontinence. All in all, the percentage of cures by radical operation for carcinoma of the prostate is very small indeed. Nevertheless, our teaching at the present time should stress the importance of doing an intelligent rectal examination on older men, in order to detect early evidence of malignancy—that is, a localized hard nodule in the prostate. Only in this way are we going to be able to attain a higher percentage of cures in such cases.

The treatment of advanced carcinoma of the prostate has always had two objectives: first, relief of the urinary obstruction, and second, relief of the severe nerve pain which so commonly follows metastases to the lumbar spine and pelvis. Twenty-five years ago Dr. Charles Mayo made this statement: "No matter what you do for carcinoma of the prostate, you do the wrong thing." By this, of course, was meant that no matter what procedure was carried out, the patient's misery was not relieved until his death. At that

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From the Urologic Division, Department of Surgery, Duke University Medical School and Duke Hospital.

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2. Moore, R. A.: Morphology of Small Prostatic Carcinoma, J. Urol. 33:224-34 (March) 1935.
3. Bumpus, H. C., Jr.: Clinical Study of 1,000 Cases of Carcinoma of the Prostate, Surg. Gynec. & Obst. 43:150-55 (Aug.) 1926.
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time the treatment employed for the relief of urinary obstruction in most clinics was merely a suprapubic cystotomy. Hence, the patient lived a catheter life for the remainder of his existence, with decreasing capacity of his bladder, increasing infection, and pyelonephritis. A second method was a conservative perineal prostatectomy. This made the patient a little more comfortable than did the suprapubic cystotomy, but usually the recurrence of the obstruction required repeated and further operative procedures for relief. The third method was radiation by radium or deep x-ray therapy to the prostate. This frequently caused regression of the tumor and reduced the size of the gland. The regression did not last long and the obstruction usually returned, making an operative procedure necessary. Transurethral resection has since revolutionized the treatment of obstruction in these cases. It is an operative procedure which is not so much dreaded by the patient; he is kept in the hospital only a few days, and has very little discomfort. The procedure carries a mortality rate of around 1 per cent, and can be repeated as often as the recurrent obstruction requires. This is one of the greatest advances in surgery during the last forty years.

Sedation, with increasing dosage, used to be the only treatment for the metastatic pain occurring in patients with carcinoma of the prostate. Finally morphia in large quantities was required continually, and the patient usually became a morphia addict. About 1923 deep x-ray therapy to the lumbar spine or pelvis was instituted, and gave most remarkable relief in approximately 75 per cent of the cases. Repeated courses were often required for control of pain, however, and frequently this method finally ceased to have any effect. Deep x-ray therapy often lowered the leukocyte count and caused a good deal of nausea and malaise, all of which lowered the general resistance. A final resort was the intrathecal injection of absolute alcohol, or a spinal operation with severance of the sensory nerve tracts of the cord. With both of these procedures there was the risk of causing a motor as well as a sensory paralysis.

To summarize, the accepted therapy in early carcinoma of the prostate is radical operation. For all other cases, transurethral prostatic resection for obstructive symptoms, followed by implantation of radium into the prostate for further regression of the local growth, and deep x-ray therapy for the amelioration of the metastatic pain has been employed. In the last twenty years great steps forward have been made in the treatment of carcinoma of the prostate, but perhaps the next twenty will see even greater progress.

Clinical Results of Treatment of Carcinoma of the Prostate by the Hormonal Approach

It is the purpose of this paper to present the clinical results of the application of the theories discussed in Part I of this study[5]. In brief, these theories are shown in figure 1. It is evident that the adult prostatic epithelium is under the control of hormones. The androgen activates the prostatic epithelium, causing a rise in the acid phosphatase. This rise may be considered an index of the activation. There is also an increase in the size of the tumor and in the resultant symptoms. Removal of the androgen, or neutralization of it with estrogen, causes inactivation of the adult prostatic epithelium and hence a decrease in the acid phosphatase. Clinically, there is a decrease in the size of the tumor and in the symptoms.

The original work of Huggins[6], referred to in Part I of this study[5], has been the stimulus for considerable work and study on this subject during the last two years. In a recent article, Randall[7] recalls that he castrated 5 patients seven to ten years ago. He finds that none of them were cured of their malignant process; 3 died within two years, 1 lived three and one-half years, and 1 is still living six and one-half years after orchiectomy, but there is evidence that he has metastasis at the present time. These cases were not studied carefully from a biochemical standpoint, but they are nevertheless worthy of note. Munger[8] in 1941 reported the results in 56 cases of carcinoma of the prostate; of 18 survivors, 10 were from a group of 45 who had had transurethral resection and deep x-ray therapy,

5. Alyea, E. P.: Hormonal Approach to Carcinoma of the Prostate, Part I, North Carolina M. J. 4:89-94 (March) 1943.
6. Huggins, C. and Stevens, R. A.: The Effect of Castration on Benign Hypertrophy of the Prostate in Man, J. Urol. 43:705-14 (May) 1940.
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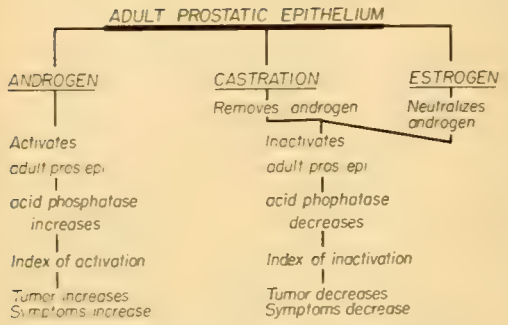


Fig. 1. Relationship between adult prostatic epithelium and hormones.

while 8 were from a group of 11 patients who had had this same therapy plus x-ray irradiation of the testes. He noted the marked difference in the rate of survival in these two groups, and stated that the rectal examination in the latter group of patients showed minimal evidence of carcinoma of the prostate. The longest follow-up period in his group was seven years.

During the last two years several clinical reports have appeared on the results of castration in carcinoma of the prostate[9]. Huggins[9a], Herbst[10], Chute[9d] and Kearns[11] have reported on stilbestrol therapy, or the neutralization instead of withdrawal of the androgen, in such cases. The immediate results obtained by both methods have been so encouraging that castration and stilbestrol, one or the other or a combination of the two, are now being used almost routinely in cases of advanced carcinoma of the prostate. It is our opinion that castration should be used in all cases of carcinoma of the prostate. In early cases, suitable for Young's radical operation, there is no reason why both procedures, the radical operation and castration, should not be carried out. We must give the patient with a malignancy every therapy that may be of any help. The most is usually too little.

9. (a) Huggins, C., Stevens, R. E., Jr., and Hodges, C. V.: Studies on Prostatic Cancer: Effects of Castration on Carcinoma of the Prostate Gland. Arch. Surg. 43:209-23 (Aug.) 1941.
   (b) Alyea, E. P., and Henderson, A. F.: Carcinoma of the Prostate: Immediate Response to Bilateral Orchiectomy; Clinical and X-Ray Evidence, J.A.M.A. 120:1099-1102 (Dec. 5) 1942.
   (c) Alyea, E. P., and Henderson, A. F.: Castration for Carcinoma of the Prostate: Report of Immediate Results, J. Urol. 48:673-811 (Dec.) 1942.
   (d) Chute, P., Willets, A. T., and Gens, J. P.: Experiences in the Treatment of Carcinoma of the Prostate with Stilbestrol and with Castration. J. Urol. 48:682-702 (Dec.) 1942.
   (e) Nesbit, R. M., and Cummings, R. H.: Prostatic Carcinoma Treated by Orchiectomy, J.A.M.A. 120:1109-11 (Dec. 5) 1942.
10. (a) Herbst, William P.: Effects of Estradiol Dipropionate and Diethyl Stilbestrol on Malignant Prostatic Tissue. Tr. Am. A. Genito-Urin. Surgeons. 34:195-202. 1941.
    (b) Herbst, William P.: Biochemical Therapeusis in Carcinoma of the Prostate Gland, J.A.M.A. 120:1116-20 (Dec. 5) 1942.
11. Kearns, W. M.: Treatment of Carcinoma of the Prostate with Estrogens, Wisconsin M. J. 41:575-81 (July) 1942.

Results in Seventy-Five Cases Treated by Castration

A year ago we reported our results in 40 cases of carcinoma of the prostate treated by castration. Since making this report, we have treated 35 more cases, making a total of 75. In 9 cases the operation was performed more than a year and a half ago, and in 31 additional cases more than a year has elapsed since castration. Recently we have sent out questionnaires to all of these patients, and have received a follow-up report on every one of them. All of them either answered our letter or returned to the clinic for examination. Most of these patients had far advanced carcinoma of the prostate. Thirty-nine had metastases to bone; thirty-six had no metastases. Six had metastases to the lungs. Nineteen had had severe pain, requiring hypodermics for relief. Thirty-five had suffered loss of weight and appetite, and were in the advanced stages of carcinomatosis; while forty were in fairly good general physical condition for men of their age.

Immediate Results: The immediate results are quite evident. As we have reported[9b,c], in the vast majority of cases the emaciated, pain-ridden patient begins immediately to improve; his appetite picks up, and he gains weight. One of our patients gained 50 pounds in six months; another, 40 pounds. Their general improvement is astounding, and they tell us that they feel better than they have in many years. In this whole group there were only 5 patients who did not seem to have immediate improvement. Nesbit[9e] reported a similar incidence of immediate failures. One of the most remarkable features is the relief from the severe pain caused by metastases to the lumbar spine, sacrum, and pelvis. Thirty-two patients reported improvement within forty-eight hours, and only 4 experienced no relief from their metastatic pain after two weeks. Many of these patients had been bedridden for weeks. They were able to get up and walk about the wards in a few days and to leave the hospital without the use of crutches. We admit this sounds very much

like the miracles of St. Anne de Beaupre, but such experiences are occurring every day in the clinics throughout the country where this therapy is carried out.

Later Results and Treatment of Recurrent Pain: It is as yet impossible to prophesy how permanent will be the relief afforded these patients by castration. In this series there were recurrences of metastatic pain in 9 patients within one year after castration, and 4 of these occurred within the first six months. If the pain recurs, we resort to stilbestrol therapy. The theoretical basis for this was explained at length in Part I[5]. Stilbestrol neutralizes the androgen which is excreted by extragonadal foci. In this series stilbestrol relieved recurrent pain in 5 out of 6 cases in which it was tried. In all of our patients who experienced a recurrence of pain, and at the same time began on a general downhill course, there was an active growth of the metastatic lesion rather than of the local malignancy. The regression of the local tumor seems to be permanent, and the progression of the malignancy takes place rather in the metastases. In 9 cases, metastasis to the spine or pelvis has progressed and the patients have followed a downhill course, but the rectal examination shows the prostate still small and, in many cases, of almost normal consistency. In 2 cases which have come to autopsy the prostate was of normal size. It was impossible to say that carcinoma of the prostate was present until microscopic sections were obtained. It is also of interest to note that in these 2 cases the acid phosphatase in the prostate was below normal, while that in the liver tissue, in which the metastatic growth had progressed rapidly, was over 1,000 units per gram. We are not at present able to give a satisfactory explanation of this phenomenon.

Effects on Hemorrhage: In our series there were 6 patients who reported to the clinic because of severe hemorrhage, some of them having had a suprapubic cystotomy to stop the bleeding. In all of these cases the bleeding cleared up immediately following castration, and none has had a recurrence. This improvement is accounted for by the regression of the tumor in the prostate, with a loss of the dilated blood vessels and ulcerations which accompany these tumor growths.

Effects on Obstruction: In most of our cases, we carried out transurethral prostatic resections, along with the castration, to relieve the immediate urinary obstruction. In 15 cases we did not carry out the resection, but simply inserted a retention catheter and performed the castration. After a period of one to two weeks the catheter was removed, and 10 of these patients have been able to void and have not needed any further treatment for their obstruction. It has been noted that the urine in castrated patients, which usually after transurethral resection remains infected for a long time, clears promptly. This means that the obstruction has been removed and that there is no residual urine.

There are many other instances to prove that withdrawal of the androgen causes direct regression of the malignant masses. One of our patients had a large suprapubic mass filling a greater part of the pelvis. Following castration this mass receded rapidly and was not palpable, when he was under spinal anesthesia, six months later. In 2 patients the growth around the trigone and ureteral orifices was such as to cause obstruction to ureteral flow with renal obstruction and uremia. Ureteral catheterization was impossible because of this obstruction. One of these patients recently reported to another hospital, and it was found that his blood urea had dropped from 102 mg. per 100 cc. to 40 mg. per 100 cc. Unexpected marked general improvement was also noted. In the other patient both ureters have subsequently opened and drainage into the bladder has again been established, with remarkable general improvement. His phthalein test shows a marked improvement in the secretion curve, and the blood urea has dropped from 68 mg. per 100 cc. to 30 mg. per 100 cc. Both ureters are now open and catheters can be passed up them. These two cases demonstrate the regression of the tumor in the trigonal region following castration.

Effect on Metastatic Lesions: Nesbit's 2 cases of transverse myelitis suggest similar regression of the tumor[9e]. Both patients had complete relief of pain and return of neuromuscular function following orchiectomy. One of them had been taking 3 grains of morphia a day and had complete transverse myelitis. He was free of pain within three days following castration. At the end of one week he could move his toes, and in two weeks his legs. He was practically free of symptoms for four months, at the end of which time

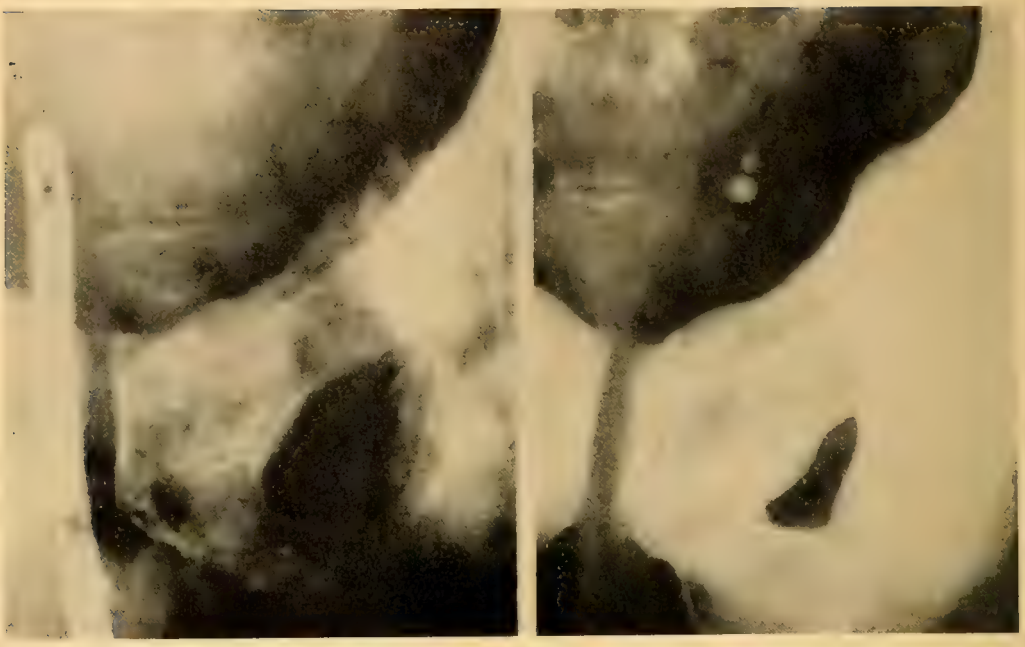


Fig. 2. X-ray before and after castration. Note bone healing, sclerosing and clearing of bone detail in superior ramus of pubis and obturator foramen.

his symptoms returned. A case has been reported in which a large mediastinal metastatic mass disappeared after orchiectomy, and in other patients metastatic inguinal nodes have disappeared. There is no doubt whatever that both the local and the metastatic masses are favorably affected, in the majority of patients, by castration.

The changes in the metastatic lesions of the bones and lungs are now well recognized[9b,c]. The bone lesions show a fuzzy, hazy growth with loss of normal cancellous bone anatomy similar to that seen in sarcoma. This change is usually most clearly visible in the pelvic bone. After castration there is an increase in bone defense reaction and an accentuation or increased density of the bone lesion. The reaction is similar to that seen in post-irradiation healing. There is smoothing, sclerosing, and clarifying of bone detail (fig. 2). We have seen this change in many cases; it is the rule rather than the exception. In our series there were 6 cases of metastasis to the lungs. This is a rather high incidence, but we believe the reason for this is that we take routine x-ray films of the chest on all patients with carcinoma of the prostate. Bumpus[3] found an incidence of 5 per cent in his series. Of the 6 patients with metastasis to the lungs, 3 showed a complete disappearance of the metastatic nodules within two and one-half months after castration. Two of these 3 patients came to autopsy; microscopic lesions were found in the lungs of one, and there were no lesions in the lungs of the other. The third patient is still living with no metastases.

Effect of "Prophylactic Castration": The group in which we are really most interested is the so-called prophylactic castration group. These are the patients with no evidence of metastasis or local extension of the tumor at the time of castration. There were 28 patients in this group; 9 were operated on more than a year and a half ago, and 6 additional ones more than a year ago. None of these so far shows any symptoms or x-ray evidence of metastasis. We can, of course, make no dogmatic statement or claim as yet, but the fact that the 9 patients show no evidence of metastasis after a year and a half is encouraging. This is the group that we are watching most carefully and with the greatest interest. Reports will be made on them from time to time.

Significance of Serum Acid Phosphatase Tests

It has been our routine practice to make alkaline and acid phosphatase tests on all of our patients, two before and two after operation, and one on each return visit to the clinic. The serum acid phosphatase level is an indication of the activity of the adult prostatic epithelium, and hence of the carcinomatous process[5]. In this series the serum acid phosphatase in patients with metastasis to bone was under 3 King-Armstrong units in 12 cases; 3 to 5 units in 11; 5 to 10 units in 5; and over 10 units in 8. Of the patients without metastasis to bone 3 had an acid phosphatase over 5 units. If 3 units is considered as the limit of normal, the test showed positive readings in two-thirds of the patients with metastasis to bone. In 2 cases the acid phosphatase determination was of distinct help in differential diagnosis. One was a case of tuberculosis of the spine with possible tuberculosis of the prostate. The rise in acid phosphatase preceded the x-ray evidence of metastasis from carcinoma of the prostate. The other was a case of carcinoma of the rectum in which a differential diagnosis was difficult; a normal acid phosphatase was obtained and later prostatic carcinoma was ruled out.

Clinical Results with Estrogen Therapy

Reduction of androgen activity may also be accomplished by neutralization with the female hormone. The synthetic substance used at present is diethylstilbestrol dipropionate. The theoretical basis for the use of the female hormone was discussed in Part I[5]. The results of clinical application have borne out the assumption made there. The histological cellular changes observed in prostatic tissue taken from patients on stilbestrol therapy have been reported by Heckel and Kretschmer[12], and by Kahle and others[13]. There is widespread alteration in the neoplastic cells, characterized chiefly by hydropic degeneration and vacuolation. The nuclear changes consist in the progressive condensation of chromatin, the loss of nucleoli, the formation of mitotic figures, and pyknosis. The special plasmic changes consist in the appearance of vacuoles, usually located at the base of the cells, so that they result in a large, pale-staining vacuolated cell. The relation between the total dosage of estrogen and the degree of tissue change could not be determined. Recently, however, we have had opportunity of examining a case treated with estrogen in which these above findings were not present. This case will be reported in detail elsewhere. In 1940 Herbst[10a] began his study of stilbestrol therapy, using 1 mg. by injection three times a week. Since then the dosage has gradually been increased, and Chute[9d] suggests the use of 10 mg. a day for five to ten days, and then, if necessary, 1 mg. three times a day. It has been our custom to use 1 mg. a day to begin with and if that does not afford satisfactory improvement and relief, to increase the dose to 1 mg. three times a day. If necessary, the dose is gradually increased until we have definite clinical signs of improvement, both symptomatic and objective. We have given as much as 10 mg. a day by hypodermic for two months. The untoward reactions encountered with small doses are mild—perhaps a little anorexia or nausea, loss of libido and potentia, and slight gynecomastia and tender nipples. As the dose is increased the reactions, particularly the nausea, are apt to become more marked. Herbst reported one patient who developed purpuric lesions while taking stilbestrol. The blood studies were negative and the purpura disappeared with the administration of calcium gluconate. Herbst also reported diminution in the urinary output. Nesbit[9e] had 3 cases of cerebral hemorrhage in a series of 15 patients treated with stilbestrol, and Herbst believes that stilbestrol may cause some lessening of tensile strength in the blood vessel wall. Chute[9d] reported 2 cases of bilateral edema of the lower extremities which disappeared when the drug was discontinued. He has treated 27 cases by castration plus stilbestrol, and he thinks this method affords quicker and more marked relief than castration alone. The dose he used was 10 mg. a day for ten days, and then 1 to 3 mg. a day for many months, if necessary. Kearns has given the drug orally, by hypodermic, and by subcutaneous implanta-

12. Heckel, N. J., and Kretschmer, H. L.: Carcinoma of the Prostate Treated with Diethylstilbestrol, J.A.M.A. 119:1087 (Aug. 1) 1942.

13. (a) Kahle, P. J., Ogden, H. D., Jr., and Getzoff, P. L.: The Effect of Diethylstilbestrol and Diethylstilbestrol Dipropionate on Carcinoma of the Prostate Gland; Clinical Observations, J. Urol. 48:83-98 (July) 1942.
(b) Schenken, J. R., Burns, E. L., and Kahle, P. J.: The Effect of Diethylstilbestrol and Diethylstilbestrol Dipropionate on Carcinoma of the Prostate Gland; Cytologic Changes Following Treatment, J. Urol. 48:99-112 (July) 1942.

tion of pellets, and he prefers the last method.

Estrogen Therapy vs. Castration

We feel that stilbestrol therapy should not be used at first, but should be kept in reserve for cases in which there is recurrence of metastatic pain or extension of the tumor after castration. There are some who advocate the administration of estrogen first, rather than castration, for the following reasons: First, men do not like to lose their testes. With this argument we have no patience whatsoever. We are dealing with a very serious malignant disease and the most radical therapy which is at all beneficial should be carried out. Second, hot flashes sometimes occur after castration. In our experience these have been very mild and are easily controlled by stilbestrol therapy. Third, castration sometimes causes edema of the extremities. This condition is evidently rare. We have not seen it in this series of 75 cases. However, even if it does occur after castration, it also occurs after stilbestrol therapy; 2 such cases were reported by Chute[9d]. Fourth, some claim that an inferiority complex follows castration. In our experience this has not been the case. All of our patients have felt a marked increase in well being and have not experienced this depression. There are those who claim also that stilbestrol therapy is easily administered and easily controlled and inexpensive. None of these arguments are tolerable when one is treating carcinoma.

Among the reasons why we prefer castration to stilbestrol therapy are the following: (1) There is a complete removal of the genital androgen rather than an uncertain neutralizing effect, which cannot be measured. (2) The procedure is a simple one, done under local anesthesia. (3) The clinical relief to the patient and the objective signs of reduction of the neoplasm are more marked after castration than after stilbestrol therapy. We feel that if castration does not offer relief, stilbestrol therapy also will be of no benefit. However, if stilbestrol therapy is ineffective, castration may very well afford relief. We have had 3 cases in our series to substantiate this belief. For these reasons, therefore, we prefer in all cases to carry out castration first, and, if it is necessary because of recurrence of the patient's symptoms or the extension of the disease, to administer stilbestrol subsequently. There have been only 4 cases in which we have used stilbestrol therapy first. In 1 case, the patient refused castration. He had a large carcinoma of the prostate, with severe metastatic pain. He was so relieved by 3 mg. of stilbestrol a day that he would not submit to castration. However, after three months he stopped taking the stilbestrol, went downhill very rapidly, and expired.

The operative procedures for removal of the androgen have been total castration, removal of the testes but not the epididymes, and intracapsular orchiectomy. We have used them all and feel very strongly that nothing but a total castration should be done. In these old men with malignant disease, nothing but the eradication of the cancer should be considered. Personal objections are easily overcome by wise counsel.

Mortality Rate in the Series of Seventy-Five Patients Treated by Castration

In our series of 75 patients 40 were operated upon more than a year ago. Of this group 7 or 17.5 per cent died within the first year following operation; 3 or 7.5 per cent died between twelve to eighteen months after operation. Seventy-five per cent are still alive—all more than twelve months after operation, and many almost two years after operation. This is a much lower mortality than one would expect in a group of such patients. Bumpus[3], in a series of 1000 patients seen at the Mayo Clinic, found a mortality of 66-2/3 per cent within nine months from the time of examination in patients with metastases, and 58 per cent within a year in those with no demonstrable metastasis. These figures are in marked contrast to the mortality rate in our series.

Advantages of Treatment by Castration

What has this new therapy, then, to offer these most unfortunate patients? Certainly, there is a longer life expectancy. Their increased days are spent more comfortably; the severe pain from metastases is relieved and the distressing symptoms of recurring urinary obstruction and infection are removed. The patient gains in appetite, weight, and general well being. Often, those bedridden with pain and even paralysis are able to walk about again in comfort. This relief may be only temporary, but even a few months of comfort are worth a great deal

to these patients who have so short a time left. There are hopes that this therapy, if carried out before extension or metastasis has occurred, may possibly prevent such a spread. Time and careful clinical observation alone will prove this.

Conclusions

1. Removal of androgen activity by castration, irradiation, or neutralization with estrogen causes regression of prostatic carcinoma.
2. General clinical improvement in patients so treated is almost phenomenal.
3. Metastatic pain is immediately relieved by castration in the vast majority of cases.
4. Regression of both the local and metastatic growths is quite evident following castration.
5. In a series of 75 patients treated by castration a small percentage had a recurrence of metastatic pain within six to twelve months.
6. So far, we have had no evidence of metastasis in any patient castrated before metastasis had occurred.
7. Serum acid phosphatase may be of help in the differential diagnosis of carcinoma of the prostate.
8. Serum acid phosphatase is usually, but not necessarily, elevated in cases with bone metastasis. It is usually not elevated in those with no evident bone metastasis.
9. We advocate castration first, to be followed later on, if necessary, by stilbestrol therapy in cases with recurrence of metastatic pain or tumor growth.

Biologic Parasitism.—The financially poor, the financially unfortunate appear to have been with us throughout recorded history. The common saying is: "The poor will always be with us." Maybe so, at least in a relative sense. For there is also poverty in foresight and poverty in individual endeavor. In so far as this is due to poverty in heredity, common sense seems to say that, as knowledge grows, we must apply new measures to decrease the production of chicks that chirp but can not or will not scratch. Unless reason based on understanding effectively guides social evolution of tomorrow in that direction, I see no escape from the degeneration that invariably follows biologic parasitism, except the ancient "law of tooth and claw." The killing of millions of pigs for fertilizer, and restricting the production of such important foods as wheat and corn, all by Federal regulation, do not (in my judgment) square with our concern for an optimum diet of man (the poor included), even in our own land. —Carlson, A. J.: Some Obstacles in the Path Towards an Optimum Diet. II, Science 97:412 (May 7) 1943.

ROENTGEN MANIFESTATIONS OF GOUT

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Before an attempt is made to evaluate the roentgen findings in gout, it is proper that the salient factors in the etiology and pathology of this disease be reviewed.

Gout is a metabolic dyscrasia, the causes of which are not properly understood. The disease is characterized by periodic attacks of joint pain and the constant presence of abnormally high blood uric acid levels. The upper limit for normal blood uric acid, determined by the method of Folin and Wu[1], is 4.5 mg. per 100 cc.; by the Jacobson method[2] it is 6 mg. per 100 cc. Among the theories advanced to explain the presence of these higher uric acid levels are the following: (1) that the kidneys of a gouty subject are insensitive to urates; (2) that the disease is due to an endocrine deficiency; (3) that it is neurovegetative in origin. Numerous other suppositions are to be found in the literature. Folin[3] advanced the theory that uric acid is normally destroyed in the circulating blood, and that in gouty individuals this destruction is lessened, resulting in an excessive retention of urates. Folin[3] further attempted to show that while the kidney absorbs and gives off uric acid, it has no specialized function of destroying this substance. The liver may have the function of destroying uric acid, since the removal of the liver in dogs results in a rapid accumulation of uric acid in the blood. Folin[3] also attempted to prove that muscle tissue does not absorb or destroy uric acid and that, while urates do not diffuse into muscle tissue, cartilage and connective tissue may permit the slow passage of urates into affected sites in gouty subjects. Lennox[4], however, stated that during prolonged starvation the

From the Roentgenological Service, Station Hospital, Maxton Army Air Base.

1. Folin, O., and Wu, H.: A System of Blood Analysis, J. Biol. Chem. 38:81-110, 1919.
2. Jacobson, B. M.: The Uric Acid in the Serum of Gouty and Non-Gouty Individuals: Its Determination by Folin's Recent Method and Its Significance in the Diagnosis of Gout, Ann. Int. Med. 11:1277-1295 (Jan.) 1938.
3. Folin, O., Berglund, H., and Derick, C.: Uric Acid Problem: Experimental Studies on Animals and Man, Including Gouty Subjects, J. Biol. Chem. 60:301-471 (June) 1924.
4. Lennox, W. G.: Increase of Uric Acid in the Blood During Prolonged Starvation, J.A.M.A. 82:602-604 (Feb. 23) 1924.

blood uric acid concentration in non-gouty patients rose sharply from 4 to 7.7 mg. per 100 cc. It is thought that this increased blood uric acid is derived from urates stored in muscle tissue. It is interesting to note that a high protein diet produces a larger excretion of uric acid but reduces the level of circulating uric acid below that obtainable on low protein diets. This finding would indicate that a gouty individual should be placed on a high protein diet. This theory is at variance with that of many writers. Lockie and Hubbard[5] observed that after a prolonged fast blood uric acid increased, and that it did not decrease when fats were fed after the fast, but that when proteins and carbohydrates were administered the blood uric acid level was promptly diminished and uric acid excretion increased. These authors cited 4 cases in which high fat diets produced acute attacks of gout.

From the roentgen standpoint, it is of interest that these excessive urates are deposited in and around various joints, and that it is these deposits which give rise to the painful attacks. However, some writers (Jacobson[2], Hench, Bauer, Hall and White[6]) state that there is an increased blood uric acid in some cases of rheumatoid and hypertrophic arthritis, and that the arthritic changes in gouty joints may be caused by the same toxins which are responsible for atrophic and hypertrophic arthritis. This fact makes a definite roentgen diagnosis more difficult.

Gout has been associated primarily with older people. This mistaken impression has been held by the layman and, unfortunately, by many physicians. The majority of present day writers on this topic state that gout occurs only in patients 40 years of age or older. This statement is not true. Cohen[7] cited 4 cases in patients between the ages of 10 and 20; 12 cases in patients between 20 and 30; and 23 in patients between 30 and 40. Talbott[8], in his series, reported the cases of 2 patients in their twenties and 6 in their thirties. Bartels'[9] studies include 4 patients, one of whom was in the thirties. Ludwig, Bennett and Bauer[10] described a severe ankylosing case of gout in a young man of 28. Lockie and Hubbard[5] described a case of gout in a boy of 16. It may be true that in the majority of cases the initial attack of painful gout takes place at 40 or thereabouts, but the fact must not be overlooked that this disease does occur in younger patients. When this point is brought home to the practitioners, we may expect a sharp increase in the number of positively diagnosed cases of gout.

Symptoms

The symptoms are usually constant. Primarily there is excrutiating joint pain. While in the majority of cases this pain is located in the first metatarsophalangeal joint, it must constantly be borne in mind that other joints may be affected. In many cases there is a history of periodic attacks of joint pain with complete remissions between attacks. A careful history will often reveal a hereditary tendency. Bowers[11] describes the objective signs, when this condition occurs in the large toe, as a bluish red swelling over a warm bunion area, with shiny skin and distended veins. The attack comes on suddenly, and within five hours reaches its maximum peak. This sudden onset is in contrast with other arthritic diseases, in which the appearance of subjective pain and objective signs is far more gradual. Chills and fever may be present. A careful history is of utmost importance in making a differential diagnosis between gout and other forms of arthritis.

Precipitating Factors

There is a marked divergence of opinion concerning the relation of diet and alcohol to acute gouty exacerbations. Hench[12] mentions dietary indiscretion as an activator of acute gout. Talbott[8], Herrick and Tyson[13] do not believe that diet or alcohol is a factor in the cause or course of the disease. Surgical operations have been suggested as a cause. This theory has not been entirely con-

5. Lockie, L. M., and Hubbard, R. S.: Gout: Changes in Symptoms and Purine Metabolism Produced by High Fat Diets in Four Gouty Patients. J. A. M. A. 104:2072-2075 (June 8) 1935.
6. Hench, P. S., Bauer, W., Hall, F., and White, P.: The Present Status of the Problem of "Rheumatism": A Review of Recent American and English Literature on "Rheumatism" and Arthritis. Ann. Int. Med. 8:1315 (April); 1495 (May) 1935.
7. Cohen, A.: Gout. Am. J. M. Sc. 192:488-493 (Oct.) 1936.
8. Talbott, J. H., and Coombs, F. S.: Metabolic Studies on Patients With Gout. J. A. M. A. 110: 1977-1982 (June 11) 1938.
9. Bartels, E. C.: The Treatment of Gout With a Low-Fat, High-Carbohydrate Diet. New England J. Med. 220:583-586 (April 6) 1939.
10. Ludwig, A. O., Bennett, G. A., and Bauer, W.: A Rare Manifestation of Gout; Widespread Ankylosis Simulating Rheumatoid Arthritis. Ann. Int. Med. 11:1248-1276 (Jan.) 1938.
11. Bowers, J. M.: Gout. Northwest Med. 37:284-288 (Sept.) 1938.
12. Hench, P. S.: Diagnosis and Treatment of Gouty Arthritis. J. A. M. A. 116:453-459 (Feb. 8) 1941.
13. Herrick, W. W., and Tyson, T. L.: Gout A Forgotten Disease. Am. J. M. Sc. 192:483-488 (Oct.) 1936.

firmed, but the studies of Folin, indicating that the disease has its origin in the circulating blood, are substantiating evidence. Certain drugs are considered as aggravators of acute gout. Hench[12] lists liver extract, salyrgan, ergotamine tartrate, vitamin B_1 and decholin as medicinal provocatives. I have seen 4 cases of acute gout in physicians which were precipitated by the administration of sulfonamides.

The traumatic incident instigating an attack of acute gout may be very minor, such as the mild stubbing of a toe, a few miles' walk, or, as in one case seen by this writer, the rowing of a boat (causing an attack in the phalanges of the hand).

Roentgen Picture

A certain percentage of cases show no joint or bone changes. The roentgenogram of the large toe of a patient with acute gout may show a hazy appearance of the medial half of the first metatarsophalangeal joint. This is due to the sharply localized soft tissue swelling. This finding, in the absence of any bone or joint changes, is not sufficient to justify a diagnosis of gout. In other forms of arthritis the peri-articular swelling covers the whole joint. The early joint manifestations of gout are one or more sharply punched out areas in the subchondral region of the affected bone. These may vary in size from 1 to 5 mm. The severity of the symptoms may not be consistent with the degree of bone changes, so that, while the patient is undergoing one of several severe attacks, the bone changes may be minimal. These punched out areas contain monosodium urates, which are radiolucent, and hence give the worm-eaten appearance. In many of these cases marginal hypertrophy is visualized. This is evidenced by lipping and the formation of exostoses. While some writers claim that there is bone atrophy because of immobilization, it has been my experience that the period of immobilization is too short to produce decalcification in the early stages of the disease.

Gout is usually monarticular, and in 54 per cent of the cases begins in the large toe. In about 5 per cent of the cases the disease is polyarticular. The younger the individual, the more apt is the disease to be polyarticular. As has been previously stated, gout may attack any skeletal bone. I have observed 3 cases in which it affected the os calcis. In 1 case a mistaken diagnosis of bone destruction had been made and surgery instituted. As the disease progresses, additional osteo-arthropathy takes place. The joint spaces become narrowed, the articular surfaces become ragged, and joints may become fused. Scott[14] denies the presence of demonstrable changes when gout attacks a major joint. Holmes and Ruggles[15], however, describe an extreme degree of destruction and new bone formation resembling a Charcot joint when the disease affects the knee. This description is confirmed by Baetjer and Waters[16]. In the advanced stages, when articular cartilage has been destroyed, we find ankylosis and subluxation of phalanges. At this time there is a decalcification of the bony structure. In the case reported by Ludwig, Bennett and Bauer[10], in which there was polyarticular involvement, punched out areas appeared in some bones at the same time that more extensive damage was taking place in other bones. Pratt[17] reported a deposition of urates in peri-articular synovial and cartilaginous structures, resulting in proliferation, fibrosis and ankylosis. This picture resembles degenerative changes seen in other forms of arthritis. These hypertrophic changes are probably secondary. Some writers claim that rheumatoid arthritis and gout occur at the same time, producing indistinguishable changes. Biopsies of gouty joints presenting severe ankylosing deformities have failed to give the positive streptococcal agglutination tests.

Punched out areas may occur in rheumatoid and hypertrophic arthritis. However, there is a far more generalized decalcification in these diseases, and the history is entirely different from that of gout. Other conditions which may resemble gout or produce gouty changes in bone are syphilis, leprosy, yaws, tuberculosis and sarcoid.

Nephro-lithiasis occurs in a small percentage of gouty subjects, and this manifestation should be looked for roentgenologically. There have also been reports of cardiac infarction caused by tophaceous emboli; so the chest should be studied for pathological alterations.

14. Scott, G. and Others: Discussion on the X-Ray Diagnosis and Treatment of Osteo-Arthritis, Proc. Roy. Soc. Med. 26:335-346 (Feb.) 1933.
15. Holmes, G. W., and Ruggles, H. E.: Roentgen Interpretation, Philadelphia, Lea and Febiger, 1919.
16. Baetjer, F. H., and Waters, C. A.: Injuries and Diseases of the Bones and Joints, Paul B. Hoeber, 1921.
17. Pratt, J. H.: A Study of the Uric Acid in the Blood in Gout by the Method of Folin and Denis, Tr. Ass. Am Physicians, 28:387-398, 1913.

Report of Cases

Four cases are cited here to illustrate some of the controversial issues concerning gout.

Case 1. Dr. L. S., aged 47, had his initial attack of gout at 28. His blood uric acid level was 8.8 mg. per 100 cc. He averaged three severe episodes per year. During these episodes he had to give up practice and was bedridden for periods ranging from ten days to six weeks. This patient was a total abstainer from alcoholic beverages. Both feet, the ankle joint, and the knee joint had been affected at various times. Roentgenographically, there was no evidence of bone or joint changes.

This case demonstrates the fact that severe attacks of gout can occur without causing changes in the bones and joints.

Case 2. Dr. J. S., aged 70, had had gouty episodes for thirty years, occurring bi-annually. This patient had been a persistent and constant drinker of alcoholic beverages. He had never noted any acute exacerbations following sprees. He was not on a restricted diet. Following an attack of cellulitis, this patient was given large doses of sulfanilamide. He promptly developed an acute attack of gout. Colchicine was administered with prompt relief. Sulfanilamide was withheld for one week and then resumed, and the patient again came down with an acute attack of gout. Over a period of thirty years his attacks were not particularly severe, at no time keeping him from work. Colchicine always gave prompt relief. Roentgen examination revealed two punched out areas in the left os calcis, cartilaginous destruction, marginal lipping, narrowed joint spaces, and partial ankylosis of the interphalangeal joints of the right hand.

This case illustrates gout with mild attacks and severe bone changes.

Case 3. Dr. H. H., aged 55, had had gout for eighteen years. His blood uric acid level was 7.6 mg. per 100 cc. He had been a persistent and constant drinker of alcohol for twenty-five years. He had episodes of moderate severity semi-annually. The regions affected were the ankle bones and large toe. He was on no special diet, and had never noted an acute attack following drinking. X-ray examination showed no evidence of bone or joint changes.

In this case alcohol and diet were disclaimed as activators of acute gout. In spite of two moderately severe attacks yearly, there were no bone or joint manifestations.

Case 4. Dr. K. S. had his first attack of gout at the age of 42. He obtained prompt relief from colchicine. His blood uric acid level was 6.7 mg. per 100 cc. This patient had been a moderate drinker of alcoholic beverages and had been on no special diet. About nine months following his initial attack of acute gout he developed an acute urethritis. Sulfanilamide was administered, and within forty-eight hours he had an acute attack of gout. Sulfanilamide was withdrawn and colchicine administered, with prompt relief. Reinstitution of sulfanilamide ten days later again provoked an acute attack of gout. This patient had three episodes in three years—the original attack and the two following sulfanilamide medication. Since then there had been no attacks. The only roentgen manifestation was one small punched out area in the head of the first metatarsal.

In this case alcohol and diet apparently bore no relationship to the attacks. The punched out area noted in this case was present prior to the first episode, for a roentgenogram taken at the time of his first acute attack showed this radiolucent area. This suggests that bone changes probably take place in some cases prior to the initial attack of acute gout.

Conclusions

1. It is important that an early diagnosis of gout be made so that the patient may obtain relief with colchicine.

2. The roentgen picture of gout may be confused with that of rheumatoid and hypertrophic arthritis. The history is of utmost importance.

3. Gout occurs in young people.

4. Roentgen changes are not consistent with the duration or severity of the disease.

5. A major bone may show destructive roentgen manifestations in gout.

6. I do not believe that alcohol or any special diet alters the course or symptoms of gout.

7. In addition to drugs previously enumerated by Hench and others, the sulfonamide group must be considered as possible exciting agents.

8. Renal lithiasis and cardiac infarcts may be present in some cases.

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JUNE, 1943

THE NINETIETH ANNUAL SESSION

The attendance on the ninetieth annual session of the state society was much larger than was anticipated by the most optimistic. The total registration was 735, exceeding last year's by a good margin. There are at least two reasons for the full attendance: (1) the strain of practice has been so great that every one who could get away was glad of the opportunity to relax; and (2) the excellent programs prepared both in the section meetings and in the general sessions offered a strong inducement.

Dr. Donnell Cobb made an admirable presiding officer, and both his addresses—to the House of Delegates and to the first General Session — were noteworthy. Each showed careful preparation and much serious thought, and amply justified his selection as leader of the State Society. The Presidential Address occupies first place in this issue of the NORTH CAROLINA MEDICAL JOURNAL, and deserves careful reading. The message to the House of Delegates will appear in the Transactions number.

As was the case last year, the Nominating Committee had little difficulty in making up its collective mind, and its report met with general satisfaction. The new officers are as follows: President-Elect, Dr. Paul F. Whitaker; First Vice President, Dr. Fred C. Hubbard; Second Vice President, Dr. George L. Carrington; Secretary-Treasurer, Dr. Roscoe D. McMillan. The following men were elected as District Councilors: First District, Dr. H. D. Walker; Second District, Dr. T. Leslie Lee; Third District, Dr. James F. Robertson; Fourth District, Dr. Newsom P. Battle; Fifth District, Dr. F. L. Knight; Sixth District, Dr. M. D. Hill; Seventh District, Dr. R. M. King; Eighth District, Dr. M. D. Bonner; Ninth District, Dr. I. E. Shafer; Tenth District, Dr. C. C. Orr.

The selection of Dr. Paul Whitaker met with universal approval. Everyone seems to feel that our society will continue to have an unbroken succession of capable leadership for two more years, at least.

The meeting of the House of Delegates was one of the most harmonious on record. Few controversial subjects were introduced, and most committee reports were accepted without objection. Every important recommendation of President Cobb was adopted without debate. Even the proposal to raise the annual dues from eight to ten dollars evoked little discussion. It was generally recognized that such an increase is needed to offset the loss of revenue from the third of our membership whose dues are remitted while they are in service.

The addresses of the visiting speakers, as well as those of our own members, were of a high order. The attendance on the general sessions and on section meetings was surprisingly good, and the discussion of many of the papers was interesting and helpful.

The ninetieth session will go down as one of the most harmonious and successful in the history of our State Medical Society.

THE NATIONAL PHYSICIANS' COMMITTEE APPROVED

For years one of the chief criticisms leveled at the leaders of the American Medical Association was that nothing was being done to combat the constant threat to the American system of medical practice. The rank and file of practitioners who were interested enough to resent the efforts of social service workers and politicians to have the federal government take over the practice of medicine demanded that something be done. In response to this justifiable demand and to meet a real need, the National Physicians' Committee was organized late in 1939. This body has been active ever since its organization in fighting the battles of the medical men of America.

With the natural tendency of the scientist to question every new step taken, many medical men have been skeptical of the value of such an organization. Some even looked upon it as a sort of racket, even though its founders included many former presidents of the American Medical Association—men whose integrity, ability, and judgment were unquestionable. Within a short time, however, this committee amply justified its existence[1]. Its most impressive achievement was reflected in the results of the national elections last November.

At its last meeting, the House of Delegates of the American Medical Association voted to give its official approval to the National Physicians' Committee. It is gratifying to know that the Medical Society of the State of North Carolina has followed in the footsteps of the parent organization. One of President Cobb's major recommendations reads as follows:

"The National Physicians' Committee continues its excellent work. Its officers and directors are recognized and safe leaders in our profession and it is, therefore, recommended that this House of Delegates give it the official approval of our Society."

This resolution was passed unanimously, and the National Physicians' Committee gets another encouraging pat on the back.

1. Is the National Physicians Committee Worth While? Editorial, North Carolina M. J. 3:648 (Dec.) 1942.

EDITORIAL NOTES

The Officers' Breakfast, inaugurated last year by Secretary Roscoe McMillan, was even more successful this year than last. There was a gratifyingly large attendance, and the exchange of ideas among secretaries and presidents of the county societies was valuable. It is hoped that the principal addresses will be carried soon in this journal, for the benefit of the entire membership of the society.

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The President's Dinner, with Dr. Paul Ringer as toastmaster, was an overwhelming success. Every available seat was taken, and many more tickets could have been sold. Dr. Spence lived up to his reputation as a humorous speaker, and Wallace the Magician put on an entertaining and mystifying performance. Ye editor, who assisted in one trick wherein he selected a lemon from a saucerful and, after keeping it in his pocket awhile, cut it open and found in it a dollar bill, still regrets that he did not save the seed.

* * * *

An innovation that was favorably commented upon was the presentation of the President's Jewel at the dinner, rather than at the first general session. It was a happy thought that inspired Dr. James Vernon to hand the jewel to Dr. W. H. Cobb, who in turn presented it to his son. This caused some to wonder whether ever before in the history of our society a member has seen his son serve as president. Can any of our historically minded members answer the question?

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The sympathy of all went to Secretary McMillan, whose mother was critically ill throughout the entire meeting. He literally commuted between Raleigh and Red Springs. The end came a few days after the meeting.

* * * *

There were a goodly number of friends and well-wishers who stayed to see Dr. Vernon installed as President and Dr. Whitaker presented as President-Elect; but none nor all of these could make up to Dr. Vernon for the absence of his wife, who was sick at home. Fortunately her illness was not serious, but it prevented her from seeing her husband inaugurated. Let us hope that she may be able to go with him in his travels during the coming year.

PRESIDENT COBB'S MESSAGE

In his thoughtful and clearcut message to the House of Delegates, President Cobb offered the following recommendations:

1. That an effort be made to bring about the amalgamation of the professional nonprofit insurance organizations in this state.

2. That the National Physicians' Committee be given the official approval of our Society.

3. That annual dues be raised from eight to ten dollars.

4. That the Secretary of the Society be made an ex-officio delegate to the American Medical Association, and "that we do not elect our delegates to the American Medical Association with the thought of honorary temporary service, but that we elect them with the thought of being able to represent us to the successful accomplishment of our aims."

5. That the Editorial Board of the NORTH CAROLINA MEDICAL JOURNAL be requested to place the table of contents on the cover.

6. That we begin to consider the advisability of having a whole-time secretary.

7. That we take official cognizance of the effort being made by the government to alter the practice of medicine, and recognize it as our duty to assist in guiding any needed changes.

8. That we instruct our delegates to the American Medical Association to support any effort "to make available in our national capital, at all times, intelligent, courageous, courteous, and authorized representatives of American Medicine, to the end that these authorized representatives offer counsel and provide accurate information to those in whom constitutional authority is vested."

The full text of the message will be published with the Transactions in August, but it was felt that the recommendations are so important that they should be brought to the attention of all members of the Society at once. Some of them need no comment, but it may be pertinent to discuss the others.

To make the secretary of the society a delegate to the American Medical Association is in line with the policy of most other states. Certainly no member of the society needs contact with the parent organization more, or is better prepared to carry to the national organization the sentiment of the members of our own state society.

It is only logical, too, that a delegate who has served a number of terms understands better the workings of the House, is better known, and hence is better able to render real service to organized medicine and to protect the interests of North Carolina doctors.

The suggestion of putting the contents on the front cover of the NORTH CAROLINA MEDICAL JOURNAL had been offered by a number of members, and has been carefully considered by the Editorial Board. There are some who prefer the cover as it is now, and there are two reasons for not making the change —for the duration, at least. One is that in order for it to look well, a heavier cover would be needed. This would add considerably to the cost of publication, and would also be in conflict with the governmental request to conserve paper so far as possible. Another reason is that advertising pages opposite reading matter bring a premium, and the table of contents is considered reading matter.

The recommendation to employ a whole-time secretary, President Cobb took pains to explain, is no reflection on the present secretary; but "because it would be extremely difficult, if not impossible, to fill his office when he retires with anyone on a part-time basis nearly so efficient, it behooves us to entertain the idea of making this a full-time position."

The importance of the seventh recommendation is quite apparent, and it should receive the attention of all thoughtful medical men.

The eighth recommendation is one that has been made a number of times from all parts of the country to the National Physicians' Committee. It has been considered carefully by the trustees of this committee, and will be given further thought. The need has been partly met, although not to the extent contemplated by President Cobb.

It is doubtful if any president of our society ever offered more important and far-reaching recommendations than has Dr. Cobb. Let us all reflect upon them and do our best to give his successor, Dr. James W. Vernon, as loyal support and cooperation as he has had.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

DUKE UNIVERSITY SCHOOL OF MEDICINE

Presentation of Case

DR. FREDERIC M. HANES: The history is that of a man of 40 who was admitted complaining of weakness and high blood pressure of one year's duration. The only contributory fact given in the family and past histories is that he had a bladder stone removed by operation eighteen years ago. There is no history of venereal disease.

Present Illness. This 40 year old, white, married male stated that he was well until approximately twelve months ago, at which time he began noticing fatigability, weakness and nervousness with occasional nose bleeds and headaches. His family physician told him that he had high blood pressure and albumin in his urine. He was given a variety of medications and was able to return to work for short intervals. The symptoms of weakness and fatigability persisted and he gradually developed mild exertional dyspnea, palpitation and amblyopia. During the past four months he had been told that he had constant albuminuria and that he was anemic. There is no history of edema, hematuria, or previous upper respiratory infection. In the past three months he had had nausea and vomiting and had noted occasional muscular twitchings.

Physical examination. The temperature was 37 C., the pulse 88, respirations 18, and blood pressure 170 systolic, 98 diastolic. The patient was a well developed, middle aged male in no acute distress who did not appear particularly ill. The skin was sallow and dry; there was no eruption. The lymph nodes were not enlarged. The head was symmetrical and without tenderness. The pupils were round, regular, and equal and reacted to light and on accommodation. The fundi revealed moderate tortuosity and silvering and streaking of the retinal vessels, but no hemorrhages or exudates. There was poor oral hygiene. The tonsils were small; the pharynx was reddened. The thyroid was not enlarged. The trachea was in the midline. The lungs were clear to percussion and auscultation. The heart was enlarged to the left, the point of maximum impulse being 9½ cm. from the midsternal line in the fifth interspace. There was a diffuse apical impulse, and a loud systolic murmur was heard over the entire precordium. There was a midline suprapubic scar; no abdominal tenderness was noted and no masses could be felt. The prostate was not enlarged. The neurological examination was essentially normal.

This patient was studied with the greatest interest by the house staff, because for forty days of observation he exhibited clinical evidences of almost complete loss of kidney function. These studies will be considered in a moment, but first we must meet the pathologist's demands for an anatomical diagnosis.

The etiological data are scanty, but I lay some stress upon the history of an operation for bladder stone eighteen years ago. This suggests that he may have suffered in the past from obstruction of the ureters and pyelonephritis. During his stay here the urine was found constantly to contain an abundance of white blood cells.

The alternative to this diagnosis is glomerulo-nephritis, and I lean to pyelonephritis because this patient did not have the ocular fundus changes that one would expect with severe glomerular damage, nor did he exhibit at any time a "nephritic stare" or proptosis[1]. I hope it is not paternal interest alone that impels me to lay some stress upon this latter point; at any rate I gladly put it to the test, as I have done so often before in these conferences, usually without regret!

The *accessory clinical findings* are remarkable: The specific gravity of the urine remained fixed at 1.010, and albumin and white cells were constantly present; there were no red blood cells and no casts.

The hemoglobin was 6.4 Gm., or 41 per cent of 15.5 Gm.; there were 1,900,000 red blood cells, with a color index of 1.2, a hematocrit reading of 17 volume per cent, and a mean corpuscular volume of 87. There were 8000 white blood cells; the differential count was not remarkable. The platelet count was 200,000, and the sedimentation rate was 10 mm. per hour (corrected). Fresh smears were not remarkable. The blood Wassermann and Kahn tests were negative.

During the forty day period of observa-

1. Hanes, F. M.: Two Clinically Useful Signs. (1) The Whistle-Smile Reflex in the Parkinsonian Syndrome. (2) The "Nephritic Stare" in Chronic Nephritis. J.A.M.A. 121: 1152-53 (April 3) 1943.

tion the nonprotein nitrogen varied from 238 to 375 mg. per 100 cc. The phenolsulfonphthalein test revealed *no excretion at all* of the dye on several occasions. The total proteins were 6.4 Gm. per 100 cc.; albumin was 4.4 and globulin 2 Gm. per 100 cc.

The average serum calcium (seven determinations) was 4.8, and the phosphorus 11.2 mg. per 100 cc.—the reverse of the normal ratio—, and the ionized calcium ranged from 1.6 to 2.4 mg. per 100 cc. When the ionized, or physiologically active calcium is less than 3 mg. per 100 cc. tetany ensues, and this patient had active tetany on several occasions, which was relieved by large doses of calcium gluconate given intravenously. In passing, it should be noted that the convulsive phenomena of uremia may be due to hypocalcemic tetany. Phosphorus is excreted largely by the kidneys, and when it is retained in the blood because of poor excretion it is excreted in part by the bowel, with resulting hypocalcemia and tetany.

However, when either calcium or phosphorus rises abnormally in the blood, a colloidal complex is formed which is removed from the blood by the reticulo-endothelial cells. These cells store it and return these elements as they are required to maintain the jealously guarded proportion between plasma calcium and phosphorus[2].

The blood pressure, which was 170 over 90 on admission, fell to an average of 135 over 70, where it remained throughout his stay in the hospital. The heart was only slightly enlarged, and the electrocardiogram showed only left axis deviation. The patient was not in cardiac failure, and this fact leads one to speculation as to the absence of hypertension. Could it be that so little functioning kidney remained that the kidney was powerless to furnish a pressor substance to the blood?

During the last few days of his illness the patient was stuporous, and had a fever, doubtless due to some terminal infection, though the notes do not permit me to say what this might have been.

Discussion

DR. KEMPNER: Dr. Hanes has given you the story of this case of kidney disease, from the operation for bladder stones eighteen years ago to the terminal renal breakdown. It is a story of lost opportunities. When the patient finally came to the hospital the chemical functions of the kidneys had ceased, and, if Dr. Hanes's prediction is correct, his kidney parenchyma had been almost completely destroyed. This patient "without" kidneys could furnish the basis for a discussion of the whole clinical physiology of kidney disease. I want to draw your attention to only two points today.

1. Dr. Arthur Grollman has told you recently that hypertension should be regarded as being due to the absence of an anti-pressor substance which, he believes, is formed by the normal kidney, just as the high blood sugar in diabetes mellitus is due to the absence of insulin which is formed by the normal pancreas. According to this theory, our patient "without" kidneys should have had a very high blood pressure, but except for a blood pressure of 170 systolic, 98 diastolic on admission, and a systolic blood pressure ranging between 160 and 185 during the last four days of his life, the average of frequent daily blood pressure readings during the remaining twenty-seven hospital days was 134 systolic, 73 diastolic, although the phenolsulfonphthalein excretion at this time was recorded as zero, and the nonprotein nitrogen averaged 268 mg. per 100 cc.

On the other hand, I believe that a blood pressure raising substance, the production of which depends upon the activity of the kidney cells under pathological conditions, causes hypertension, and I would explain the absence of hypertension in this patient by the assumption that there was only a minimal amount of physiologically active kidney tissue left.

2. This patient up to his death excreted an adequate amount of urine, averaging in the last twenty days of his life 1664 cc. daily; and his urinary nitrogen and urea excretion in this period were considerably higher than we have frequently found them to be in nephritic patients with a normal nonprotein nitrogen.

This point is illustrated in the following table. Patient "B", a chronic nephritic with hypertension, received the same diet, consisting chiefly of carbohydrates, as did the patient under discussion in this conference.

2. Gersh, I.: The Fate of Colloidal Calcium Phosphate in the Dog, Am. J. Physiol. 121:589-94 (March) 1938.

	Blood NPN mg. per 100 cc.	Total urine excretion in 24 hours Volume cc.	Nitrogen Gm.	Urea Gm.
Patient A (under discussion)	300	2150	7.9	11.9
Patient B (chronic nephritis; hypertension)	24	1250	2.8	3.2

These figures illustrate again a point which I have made in previous papers[3,4]: that the high blood nonprotein nitrogen is *not* necessarily due to a *decreased excretion of urea* through the kidneys, but may be due to a *surplus formation of urea.* This surplus urea is formed from amino acids by the liver whenever there is an impairment of the chemical functions of the kidney cells. Normally the kidney cells participate to a great extent in the metabolism of amino acids, converting them into ammonia, which is more easily excreted in the urine than is urea.

3. Kempner, W.: Verminderter Sauerstoffdruck in der Niere als Ursache der "reversiblen" uraemischen Acidose, Klin. Wchnschr. 17:971-73 (July 9) 1938.
4. Kempner, W.: The Role of Oxygen Tension in Biological Oxidations, Cold Spring Harbor Symposia 7: 269, 1939.

Anatomical Discussion

DR. DOUGLAS H. SPRUNT: At autopsy the abdominal cavity contained 1000 cc. of clear fluid. The heart was hypertrophied, weighing 375 Gm. Some yellow areas, which microscopically were seen to be fat, were present in the myocardium.

The kidneys were about normal in size but weighed only 70 Gm. each. On section the kidneys, as shown in the illustration, were only shells, with greatly dilated pelves. The cortex was quite irregular and several yellow nodules were seen. In microscopic sections of the kidney only a few glomeruli were found, and all of these were damaged, showing all stages of necrosis, scarring and hyalinization. There was also extensive round cell infiltration, particularly just beneath the capsule. The larger and middle sized arteries were extensively sclerosed; the arterioles, however, showed only a slight amount of sclerosis. The tubules were dilated and frequently filled with a dense, laminated, eosin staining material. A microscopic prepara-



Fig. 1. Photograph of the halves of one kidney, showing the cut surface and the exterior, with the capsule stripped away.

tion of one of the yellow nodules showed considerable scarring, but much of this tissue was composed of hypertrophied and dilated tubules which contained much fat in the cytoplasm of the cells. Many of the tubules were plugged with polymorphonuclear leukocytes and gram-negative rods. There was also considerable polymorphonuclear reaction in the interstitial tissue, with some abscesses.

The ureters were dilated and showed a large amount of ureteritis cystica. The ureters were dilated both above and below the area of ureteritis, so this cannot be considered as a cause of obstruction, but rather as the result of an old inflammatory reaction, probably occurring at the time of the obstruction. The bladder was moderately dilated and slightly hypertrophied. It was in no sense a cord bladder. No obstruction was found in the urethra. Microscopic preparations of the bladder showed the epithelial lining to be replaced by a loose fibrous tissue in which were numerous focal accumulations of small round cells.

The parathyroids neither grossly nor microscopically showed any hyperplasia. The bone marrow was found to be largely fat.

The meninges were infiltrated with polymorphonuclear leukocytes and macrophages. A large number of gram-negative rods were seen.

The lungs were edematous and there were a few macrophages, some of which contained iron pigment. Fibrin and gram-positive cocci were found. There was no chronic passive congestion and the other organs were essentially negative.

Bacteriological Report: The urine contained Staphylococcus aureus and atypical gram-negative rods which were non-motile and encapsulated. They fermented dextrose and mannite with the production of acid, and failed to ferment lactose or sucrose. There was no indole production and no production of alkalinity in milk. The gram-negative rods in the urine failed to agglutinate with the antisera of Shigella dysenteriae, Flexner or Eberthella typhi; there was no quellung reaction with Friedlander's A or B antiserum. The brain contained the same gram-negative rods.

Discussion: The onset of symptoms in this patient apparently started twenty years before death, with a history of genito-urinary stones, which led to both obstruction and infection. Although the stones were removed the kidneys already had been irreversibly damaged. This damage caused an anoxemia of the kidney with resultant renin production, and this overproduction of renin led to hypertension and cardiac hypertrophy. Thus a vicious circle was inaugurated, producing more and more damage to the kidneys. During the last year of his life the patient was obviously in renal failure as a result of marked loss of renal tissue. This caused a hypoplasia of the bone marrow, with both anemia and leukopenia, and this anemia and leukopenia set the stage for the final infection of the kidneys and meninges.

The absence of parathyroid hyperplasia in this patient is interesting. We would have expected to find the parathyroids enlarged, since the serum phosphorus was elevated and the serum calcium lowered.

Special attention should be called to the presence of inspissated protein material in the tubules of the kidneys. Blackman[5,6] and his associates recently have pointed out the deleterious effect of such proteins upon kidney function.

Anatomical Diagnosis

Chronic cystitis; hydroureter; hydronephrosis; ureteritis cystica; chronic pyelonephritis; cardiac hypertrophy; hypoplasia of bone marrow; secondary anemia; uremia; anasarca; fatty change in myocardium; dilatation of left ventricle; pulmonary edema; acute pyelonephritis; acute leptomeningitis.

5. Blackman, S. S., Jr., and Davis, B. D.: Electrophoretic and Kjeldahl Analysis of Protein in Nephritic Urine and the Effect of Proteinuria on the Human Kidney, South M. J. 36:247-51 (April) 1943.

6. Blackman, S. S., Jr., Goodwin, W. E., and Buell, M. V.: On the Relation Between Concentration of Total Protein and of Globulin in Urine and Pathogenesis of Certain Renal Lesions in Bright's Disease, Bull. Johns Hopkins Hosp. 69:397-467 (Nov.) 1941.

The lesson taught repeatedly in the study of tuberculosis will probably one day be found equally true of other conditions. Basically a bacterial infection, this disease lies dormant only to flare up violently when the barriers raised by adequate nutrition are broken down. Denmark's experience in the last war was a classic example of the relationship between food and this disease. A thirty per cent rise in the mortality from tuberculosis occurred in 1916-17; a similar rise was noted in the belligerent countries and in Holland, continuing to the end of the war. In Denmark, however, after a blockade that prevented the export from that country of foodstuffs—chiefly meat, fish, butter, and milk—there was a prompt fall in the death rate. J. A. Johnston, M.D., Henry Ford Hosp., Nat. Parent-Teacher, Apr., 1943.

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

Report of Case

A.C.L., a 53 year old female, was admitted to the private service of the North Carolina Baptist Hospital on July 22, 1942, complaining of malaise and general aching. She had apparently been well until four or five days before admission, when there was an insidious onset of malaise, and aching pain in the back and extremities. She thought that she had had fever, but her temperature had not been taken. She complained of a sensation of chilliness, but there had been no frank chills. Two days before admission she began to have right frontal headache and a moderate postnasal discharge. About this time she noted some weakness in both knees with moderate tenderness and questionable swelling, but without redness or increased local heat. No other joints were involved. There had been no cough or pain in the chest, no nausea, vomiting or abdominal pain, and no urinary symptoms. She had been treated for several days before admission with antipyretics and one of the sulfonamide drugs. A month ago she had drunk water from a well which was suspected of being contaminated with the typhoid bacillus.

Physical Examination: The patient was a well-developed, very obese female who was somewhat disoriented and appeared to be acutely ill. The temperature was 40 C., the pulse 130, respirations 32, and blood pressure 160 systolic, 80 diastolic. The skin was warm and moist and there was slight cyanosis of the lips. The pupils and optic fundi were normal. The conjunctivae and sclerae were clear. The pharnyx was not injected. There was no rigidity of the neck and the cervical veins were not distended. The heart was not enlarged and no murmurs were heard. The lungs were clear except for numerous fine moist rales at both bases. The breath sounds were normal, and the percussion note resonant. The abdomen was soft without tenderness, and no masses were felt. There was no adenopathy. Pelvic examination was recorded as being negative.

Laboratory findings: A urinalysis showed a specific gravity of 1.015, a 1-2 plus reaction for albumin, and no sugar. The urinary sediment showed 1-2 granular casts, an occasional hyalin cast and 1-2 white cells in all specimens. An occasional red blood cell was seen in one specimen. A smear and stain of the fresh urinary sediment showed no organisms. Urine culture was negative.

On admission the hemoglobin was 11.5 Gm., red blood cells 4,400,000, white blood cells 4100, with 68 per cent polymorphonuclears, 30 per cent large lymphocytes, 2 per cent monocytes. The white blood cell count rose to 14,800 on the second day and gradually fell to 8000 on the day before death, with an average of about 85 per cent polymorphonuclears. No malarial parasites were seen. The nonprotein nitrogen on the day before death was 80 mg. per 100 cc. The blood Kahn test was negative. Widal and agglutination tests for Brucella were negative.

Four blood cultures were made, with the following results:

July 22: Plate culture was negative; broth culture showed gram positive cocci.

July 23: Plate culture was negative; broth culture showed gram positive cocci.

July 24: Plate culture was negative; broth culture showed gram positive cocci resembling staphylococcus.

July 26: Plate culture was negative; broth culture showed Bacillus subtilis.

A bloody tap was obtained on lumbar puncture. The spinal fluid pressure was 100 mm. Culture of the spinal fluid was negative.

Course in the Hospital: The patient's temperature during the first forty-eight hours in the hospital ranged between 40 and 41.3 C. On the day after admission a soft blowing systolic murmur was heard over the entire sternum and persisted until the patient became moribund. The signs in the lungs remained unchanged. Slight tenderness was noted over both femoral veins, localized at the femoral rings, but there was no edema or redness or change in temperature in the legs. By the second hospital day the patient's mental state had changed from slight disorientation to intermittent periods of frank delirium. The respiratory rate had remained at about 28 and the cyanosis persisted. During the night respiration became labored and depressed and the patient was given two injections of coramine, with some improve-

ment. Sulfathiazole, which was begun on admission, was discontinued at this point. On the following morning definite rigidity of the neck and a positive Kernig sign were noted. By this time two small purple macular lesions had appeared on the inner surface of the left arm. On the third hospital day she was seen by a neurological consultant, who noted a general hyporeflexia, moderate rigidity of the neck, and small, fixed pupils. The optic fundi could not be seen. There was no facial or other localized motor weakness. During that day two indurated subcutaneous lesions about 1.5 cm. in diameter were noted on the lateral surface of the right thigh. In the center of each area was a small pinpoint purplish spot. In addition, numerous small, pinpoint, dark red, confluent lesions were found on the soft palate and tongue. There were also sparsely scattered, small, brownish macular lesions over the trunk and extremities. By this time the patient was in coma and there was a uriniferous odor to the breath. The blood pressure was 120 systolic, 50 diastolic. After forty-eight hours the temperature had fallen somewhat, but on the fifth hospital day it began to rise steadily to 42 C., with a corresponding rise in pulse rate. With the rise in temperature there was a progressive fall in blood pressure to 80 systolic, 40 diastolic, and increasing respiratory difficulty. The signs in the lungs remained unchanged, as did the neurological findings, and the patient died in coma on the seventh hospital day.

Discussion

DR. GEORGE T. HARRELL: In summary, this case involves a 53 year old female who had previously been well and who suffered from an acute illness of twelve days' total duration which was insidious in onset and accompanied by severe toxemia, suggesting a systemic infection. Signs appeared chiefly in the lungs and cerebrum. The history gives no information as to the mode of entry of the etiologic agent. The most important clinical features are the development of skin and mucous membrane lesions, a heart murmur, vein tenderness and coma. It is also important that the signs in the lungs continued unchanged. The *laboratory data* give evidence only of fever and dehydration and demonstrate no specific etiologic agent.

In attempting to analyze the record in greater detail from the viewpoint of pathogenesis, we find evidence of lesions developing in different organs. If this were a disease primarily involving the heart, the lesion must of necessity have been on the right side, since there were rales in the lungs, and peripheral signs, as evidenced by skin lesions, were late in developing. The murmur which developed while the patient was under observation suggests an endocarditis, but the spleen was not palpable, and we are not told whether an anemia occurred. It is possible that the murmur was the result of dilatation of the heart from toxemia and hence is of no significance. The striking increase in respirations suggests parenchymatous involvement of the lungs sufficient to impair gaseous exchange with the blood. This explanation is further borne out by the presence of slight cyanosis and rales in the chest which persisted unchanged. We are not told whether there were any signs of consolidation or cough, and if any sputum was raised, what was the character of it. In the absence of signs of cardiac failure, such as engorgement of the neck veins or enlargement of the liver, we must assume that the rales indicated a wide-spread process with multiple small areas of involvement of the lungs. An x-ray of the chest and a smear and culture of the sputum would have been most helpful. The presence of albumin and casts, and the low specific gravity of the urine suggest a lesion of the kidneys. We are not told if the blood pressure was known before the present illness. It is possible that there was an underlying arteriosclerotic nephritis or some other mild cause of the systolic hypertension, but in view of the severe toxemia, I think all of the urinary findings can be explained on the basis of cloudy swelling of the kidney tubules. The positive Kernig sign, the changes in the pupils, and the lack of neurologic localizing signs would suggest a lesion in the meninges. The low spinal fluid pressure fails to bear out this diagnosis, although we are not told on what day the spinal puncture was done, nor are we told the results of a smear or stain of the spinal fluid. If the blood noted had been due to a cerebral vascular accident, the pressure would in all likelihood have been increased; centrifugation with a benzidine test on the supernatant fluid might have settled this point. That the brain tissue itself was involved is evident from the headache, delirium, changes

in the pupils, and generalized hyperreflexia. That these intracerebral signs could have resulted by spread from an infected sinus is suggested by the localization of the headache to one side of the head and the presence of a moderate postnasal discharge. If the discharge were watery rather than purulent, it would have much less significance; an x-ray of the sinuses would have settled this point. These findings, in the absence of peripheral lymph node enlargement, would suggest that the process started internally and spread through the lymphatics into the blood stream, localizing first in the lungs, and spreading to the other parts of the body from there.

Let us review the record from the standpoint of the etiologic agent which might have produced these lesions. Of the virus diseases, psittacosis causes primarily a pneumonia in the human being, but in experimental animals may cause a meningitis. There is no history of exposure to birds nor of an arthropod vector which might have been involved. The white blood cell count is consistent with this diagnosis, but the skin lesions and hemorrhagic tendency are not usual findings. If this were a rickettsial disease, we would expect the severe headache to have been more generalized than localized and the skin lesions to have developed more widely and to have been more hemorrhagic. Q. fever may involve the lungs more often and more extensively than any of the other members of this group, but again there is no history of an arthropod vector. Estivo-autumnal malaria, due to the Plasmodium falciparum, may cause most bizarre symptoms, but the duration in this case is too long since the very severe infections tend to kill during the first three days. The fact that malarial parasites were not seen in the blood in the first day or so need not rule out this diagnosis, but would render it unlikely. Severe symptoms may result from drug sensitivity to one of the sulfonamides, with which she had been treated; but such cases almost always show definite improvement by the third day after withdrawal of the drug. The primary blood dyscrasias, such as purpura with bleeding into the various organs, should be thought of; but we have no platelet count, bleeding and clotting times, or tourniquet test to substantiate this diagnosis. Acute leukemia, particularly of the monocytic variety, would be suggested, but there were no alterations in the pharynx or gums, and the differential blood count does not suggest this condition. However, no description of the blood smear has been given. The course was too rapid for a malignant lymphoma, and one would expect the development of palpable peripheral nodes before death, if this had been a tumor. Other diseases of unknown etiology, such as periarteritis nodosa, are suggested by the nodules in the skin and the leukopenia, but the disease progressed much more rapidly than one would expect in these conditions, and no eosinophils were described in the blood smear.

Thus we are left with a bacterium as the most likely etiologic agent. Staphylococci were repeatedly grown from the blood. A staphylococcus infection of this severity is usually sudden in onset and accompanied by repeated chills. The organisms are readily recovered in plates poured with 1 to 2 cc. of the patient's blood, which serve as a convenient index of the degree of bacteremia. If there is less than 1 colony per cubic centimeter of blood, the poured plates may be sterile and the organism will grow out only in broth which is inoculated with 5 cc. or more of blood. It would be interesting to know if the organisms were hemolytic and hence of a toxin-producing (hemolysin) strain, and if the segmenter:non-segmenter ratio of the polymorphonuclear cells of the peripheral blood were reversed; such a reversal is further evidence of a toxin (leukocidin) production. Although it is not uncommon to find the broth alone contaminated from the air by a non-hemolytic staphylococcus, which may be a non-pathogenic albus or a slightly pathogenic aureus, the fact that three successive cultures were positive would seem to rule out errors in technique. In an infection of this severity there would be many more organisms in the blood stream than apparently were recovered, and they most certainly would be toxin-producers. This fact leads us to suspect that the staphylococci came from an incidental bacteremia unassociated with the primary pathologic process. The recovery of Bacillus subtilis from the broth on one occasion was undoubtedly due to contamination. Meningococcus septicemia may give very severe cerebral and skin signs, but usually occurs in much younger individuals and is accompanied by sudden onset, definite chills, joint pains, and

earlier development of skin lesions. In meningococcus infection the findings in the cerebrospinal fluid are very definite on smear. However, these organisms may require increased carbon dioxide tension or media enriched with material such as ascitic fluid, and we are not told whether these cultures were planted in such a fashion. The Brucella group of organisms may cause very acute disease, but it is rarely of this severity or so rapid in its course. Here again, certain strains may require increased carbon dioxide tension and a liver infusion media for ready isolation. The absence of agglutinins would be anticipated in a fatal infection of short duration. The severity of the toxemia suggests infection with Eberthella typhi. Clinically, the slight lag of the pulse in relation to the temperature, the height of the temperature, and the delirium are perfectly compatible with this diagnosis. The incubation period, however, is too long, following the exposure one month previously to water which may have been contaminated with this organism. Since typhoid fever in the early stage is a septicemia, it would be most unusual not to have recovered the organisms from the blood, even though we are not told whether bile was added to the blood plates. The spleen was not palpable as it almost always is in typhoid fever. Rose spots are not indurated or subcutaneous as were the lesions in this patient, but are very superficial emboli in the capillaries of the skin. We are not told if the patient had ever been immunized with typhoid vaccine. The negative Widal test is of no help since a disease of this severity must presuppose the absence of resistance on the part of the individual, and sufficient time had not elapsed since the onset for agglutinins to develop in the second week of the disease. The organisms were not demonstrated on the smear or culture of the urine.

The distribution of the lesions is perfectly consistent with infection with the tubercle bacillus. The involvement of the lungs, meninges and brain, and even the purpura in the skin may occur in miliary tuberculosis. The duration of this disease, however, is usually more than twelve days. An acute miliary process usually occurs in a much younger individual with no preceding evidence of tuberculosis, or in a person of this woman's age or older who has had an old fibrous process of the lung which has broken down and spread. The tuberculin test would be of no help, since it is more often negative than positive in miliary tuberculosis. An acid-fast stain of the sputum would have been of considerable help.

There is one other type of bacterium which may give a lesion pathologically resembling tuberculosis but which runs a more rapid course. This is the Pasteurella group of organisms. The temperature, pulse, respiration, blood pressure, cerebral and pneumonic symptoms, skin lesions, purpura, and the duration of the disease are all quite typical. We lack, however, the history of exposure to any rodent or small animal, and there was no local lesion. Pasteurella pestis, which causes plague, is usually cultured in enormous numbers with no difficulty, and hence this member of the family seems ruled out. Pasteurella tularensis, however, requires the addition of cysteine to the culture media to recover it, and we are not told if the media were prepared in such a fashion. A skin test positive to detoxified tularense antigen or a positive agglutination test would have been very helpful. The most common type of infection with tularemia is the ulceroglandular type, in which a definite local lesion can be seen. The more uncommon typhoid type may follow the ingestion of improperly cooked wild meat, the organism gaining entrance to the lymphatics of the abdominal cavity and hence producing no peripheral lesions until after the lungs have been involved. Microscopically, the lesions of tularemia are frequently confused with acute caseous tuberculosis. Even though there is no history to support the hypothesis, it is my belief, since the clinical findings fit so well and the etiologic data suggest no other infecting organisms, that this patient died from a *typhoid type of tularemia*, the organisms having entered through the gastrointestinal tract.

Dr. Harrell's Diagnosis

Typhoid type of tularemia

Pathological Discussion

DR. W. C. THOMAS: The pertinent lesions in the case were found in the lungs, liver, enlarged spleen and lymph nodes. Grossly, these lesions appeared discrete, grayish white, and softened, and varied from 1 to 20 mm. in diameter. Microscopically, they

represented areas of necrosis with little reaction in the surrounding tissue other than occasional monocytes and round cells. Smears, cultures and bacterial stains on the tissue revealed no pathogenic organisms. Five mice and four rats were injected intraperitoneally with a saline extract of the pathological material. All of the animals were dead by the fifth day. The lesions found in this patient were reproduced in the animals. Bacteriological study of the animals was prevented by an undiagnosed illness of the investigator. The pathologic features of this case are compatible with those of tularemia.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Divorce: A physical separation caused by a commitment of one of the parties for insanity is not "separation" constituting grounds for divorce, nor could the party committed consent to a separation during the continuance of the mental incapacity.

Inasmuch as a great many divorce cases have been instituted within recent years against persons **non compos mentis**, and decrees granted in many instances, it was thought that the following case would be of interest in showing the complications which might occur unless the law is followed strictly in every particular.

In the case at hand, the plaintiff instituted an action for divorce on August 23, 1937, in Guilford County, North Carolina. In his complaint he alleged that he and the defendant, his wife, became separated by mutual consent on August 1, 1935, and lived separate and apart from that time until the action for divorce was begun. The defendant at the time of the institution of the suit was living in the city of Washington, D. C., and could not be served personally. Therefore, summons was served upon her by publication in the papers.

At the November, 1937, Term of the Superior Court of the above named county, appropriate issues were submitted to a jury and answered in favor of the plaintiff. A decree of absolute divorce was awarded. On January 13, 1939, the defendant filed her petition and motion in the cause in which she alleged that she was insane from October 26, 1931 to February 21, 1936; that she was confined at an institution; and that a guardian, who lived in the city of the residence of the plaintiff, had been appointed, all to the knowledge of the plaintiff. The plaintiff in answer to the petition asserted that he had provided $25.00 per month for his wife's support since the separation in 1931. He also alleged that she was restored to sanity on August 1, 1935. The defendant offered documentary evidence to show that she was adjudged incompetent on August 9, 1931, and was adjudged competent on January 3, 1936, and that her guardian was officially discharged by order of court on February 21, 1936.

With reference to this petition filed by the defendant, the court was unable to find any evidence of fraud. Therefore the motion was overruled, and the decree of divorce was adjudged binding and in full force. The defendant thereupon excepted, and appealed to the Supreme Court.

When this case was considered by the Supreme Court, the Justice writing the opinion gave a definition of separation as follows: "In matrimonial law, it means a cessation of cohabitation of husband and wife by mutual agreement" or by judicial separation by "a decree of Court". He also stated that our Statutes contemplate the addition of separation caused by desertion or abandonment, or other wrongful acts of the party sued.

It was therefore held that if one of the parties were insane, as was alleged in the affidavit of the defendant, no separation could occur; and that if the separation were involuntary, such as must result from confinement in an institution for the mentally ill, it would not come within the law as a separation which would be grounds for a divorce after two years.

The court held in this connection that this case should be remanded for further hearing, inasmuch as evidence was offered in the defendant's affidavit tending to show that during the period of alleged separation she was incompetent, and in fact part of the time was confined to an institution for the treatment of the mentally sick. The decision indicated that if these allegations were true, fraud had been practiced upon the court. The case was remanded for further hearing. (North Carolina Supreme Court Reports, Vol. 215, page 685. Decision rendered Spring Term, 1939.)

Laws limiting free production, transportation, and sale of good foods.—There is a federal tax of ten cents per pound on colored margarine. This effectively prohibits the sale of this margarine in the United States. The experience in Europe and in the United States goes to show that margarines palatable and of a nutritious value, in all probability not inferior to good butter, can be made out of vegetable fats or animal fats other than that in milk. Such margarines can be and usually are fortified by the addition of the vitamins present in milk fats. We usually add a non-toxic color to winter butter without either labeling or taxing it, but when this color is added to margarines our federal government taxes it at ten cents per pound. Ostensibly this law was enacted for the protection of the consumer against deception. That phase can be taken care of by labeling, for most Americans can read. Actually the law was forced on our country by a pressure group, and I fail to see where the law works in the interest of our fellow-citizens in the lowest income group. Were all federal and state restrictions on good margarine swept overboard good margarine could probably be made and sold at half the cost of good butter. It appears that thirty states have themselves absolute prohibition against the sale of colored margarine. Twenty-nine states prohibit the importation of so-called "filled milk." This food is a combination of skimmed milk and animal or vegetable fats other than butter fat. This food, like margarine, can be and usually is fortified with the vitamins found in good condensed milk. Northern dairy states discriminate against margarine and "filled milk." Southern states retaliate by restricting dairy food by requiring inspection at the source of supply by officials of the importing state, an inspection duplicating that of the producing state.—Carlson, A. J.: Some Obstacles in the Path Towards an Optimum Diet. II, Science 97:413 (May 7) 1943.

BULLETIN BOARD

INAUGURAL REMARKS

JAMES W. VERNON, M.D.

Members of the Medical Society of the State of North Carolina, ladies and gentlemen, guests and friends:

I hardly believe you are expecting me to say very much this afternoon. I hope that you are not, but I want to tell you that I am deeply aware of this high honor and I am also deeply aware of the tremendous responsibility that you have put upon me. Donnell Cobb usually makes a success of what he undertakes, so I have heard and believe. He is supposed to have had me under his training for a year. About this time last year I felt hopeful that if he took me under his tutelage I should be somewhat prepared for the demands of this office; but now I can not help saying that I do not know whether he has done the job well enough to enable me to reach the high level set by my predecessors.

I was impressed with Dr. Cobb's Presidential Address, and I certainly hope that throughout the coming year I may be able, with your help, to carry forward some of the ideas that he presented to us in that address. I firmly believe with him that if we, as a profession, can not find some way to step out in front and lead medical thought and some of the strong medical trends of the day, and lead them wisely and conservatively, we may find ourselves led by laymen.

I have no address, as you see, to make to you, but I want to say this. I want to change, if I may, the title of the Committee on Socialized Medicine, which we have had for a good many years. I believe it is a misnomer, and I think it carries with it a connotation that is not desirable. I saw recently a report of the New York State Medical Society in which it was stated that their committee had been named the Planning Committee on Medical Policies. I should like for some of you to tell me personally what you think of having a committee by that name.

I desire to say to you that I am deeply conscious of the many duties and responsibilities that are coming upon me. I ask your personal and professional support, and I pledge you to do my very best.

SECRETARY'S MESSAGE

REPORT ON THE NINETIETH ANNUAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

The Ninetieth Annual Session of the Medical Society of the State of North Carolina, held in Raleigh on May 10, 11 and 12, was, in spite of the shortage of help at the Hotel Sir Walter due to war conditions, quite a successful one. The attendance exceeded that of the 1942 meeting held in Charlotte, there being 735 physicians registered during the session. This increase in attendance is attributed to the fact that the physicians of the state have been working under such a tension for the past year, and have had so little time for diversion and for study that they were eager to go to the State Society meeting not only to gather professional knowledge but just to get away from it all for a short time. It is indicative of the necessity for continuation of meetings of the profession throughout the state.

The theme of the meeting, "War Medicine", was stressed by Capt. Waltman Walters of Corona, California, who made a most enlightening talk on "The Treatment of War Casualties"; by Lt. Col. Worth B. Daniels of Fort Bragg who very efficiently presented the subject "Sulfadiazine in the Treatment of Meningococcic Meningitis"; by Lt. Col. Charles W. Mayo of Mayo Clinic fame, whose subject was "One Stage Combined Abdomino-Perineal Resection for Malignancy of the Lower Colon, Rectosigmoid and Rectum" and whose talk was illustrated with a color movie; and last, but not least, by Governor J. Melville Broughton, who touched upon the results of the war which the profession might expect along the lines of socialized medicine.

Dr. Donnell B. Cobb, President of the Society, by his forceful address before the First General Session on Tuesday morning, gave his hearers the inspiration to do nobler, better and more untiring service during the present emergency. He particularly stressed the importance of cooperation among those who make up organized medicine in leading the way to any improvements necessary in medical service.

The Officers' Breakfast held on Tuesday morning at 7:30 o'clock was well attended in spite of the early hour, and was in many

ways a greater success than the initial meeting of this group held in Charlotte last year. The talks made by Dr. Verne S. Caviness, Dr. O. L. MacFayden and Dr. George L. Carrington led into a very profitable round-table discussion of the various problems which confront the officers of County Medical Societies.

The Sectional Meetings were well attended and the programs were indeed a credit to the chairmen of these sections whose untiring efforts made possible a discussion of timely subjects in each section.

The President's Dinner and Ball, the one social event of the entire meeting, with Dr. Paul Ringer as Toastmaster, could hardly have been more delightful. None failed to respond to the witticisms of Dr. H. E. Spence of Duke University nor to marvel at the various feats of magic performed by Wallace—The Magician of Durham. At the Ball the older guests felt young again and the younger guests exceedingly light-footed as Woody Hayes' orchestra swung into the rhythm which dictated the spirit of the occasion, thus demanding that everyone forget his worries for the duration of the dance.

The Nominating Committee was on its toes and wisely selected the officers for the coming year. Few could fail to approve the new officers: Dr. James W. Vernon, President; Dr. Paul F. Whitaker, President-Elect; Dr. F. C. Hubbard, First Vice President and Dr. George L. Carrington, Second Vice President.

The great majority of the Fellows of the Society will be delighted to know that the 1944 meeting is to be held at Pinehurst.

Dr. James W. Vernon's installation as President was most impressive. Although the Society regrets that Dr. Cobb can serve only one term as President, all the Fellows are looking forward to a successful year under the able leadership of Dr. Vernon.

Raleigh has again, as it has each decade for the past fifty years, proven itself a gracious host to the State Medical Society. The hospitality shown would not have been possible without the hearty cooperation of the entire Wake County Medical Society. Let us look forward to the time we may again meet in Raleigh with the Wake County Medical Society as Host.

ROSCOE D. MCMILLAN, M.D.

NEWS NOTES FROM THE STATE BOARD OF HEALTH

North Carolina today is spending $3,148,000 on public health, as compared with $604,312 in 1934, Dr. Carl V. Reynolds, State Health Officer, told the conjoint session of the State Board of Health and the State Medical Society. "We have 808 workers in our happy, contented and enthusiastic family, all of whom have had special training in their respective fields," he continued, referring to the entire personnel set-up at the State Board and in the local health units.

Dr. Reynolds outlined the work of public health in its various undertakings during the past year, including that of new projects. He gave an account of what has been accomplished in the various divisions. The effectiveness of maternal and infancy clinics, he pointed out, is shown by the fact that the maternal and infant death rates for 1942 reached the lowest points in the history of North Carolina, the maternal rate dropping from 4.1 to 3.4 during the year and the infant rate from 59.4 to 46.8.

More than 95 per cent of North Carolina's 3,571,000 people now are enjoying full time organized health protection, Dr. Reynolds reported.

Reporting on the progress of the fight on venereal diseases, he said:

"There are now a total of 309 venereal disease clinics, with 414 clinic sessions held weekly, with clinic services available to 95 per cent of the State's population. The Division of Epidemiology distributed drugs to the amount of $6,508 to the private practitioners of medicine in North Carolina, without charge. We received reports of 15,151 new untreated cases of syphilis during the year. Private physicians, hospitals and other institutions reported 2,536 new untreated syphilis cases. During this period an average of 24,606 patients per month attended public health clinics for treatment or clinical aid for syphilis. We administered 822,769 treatments. There were only 7,617 new untreated cases of gonorrhea and chancroid reported. Private physicians, hospitals and other institutions reported 4,141 new untreated cases of gonorrhea."

Reporting on malaria control work, Dr. Reynolds said:

"Due to the war emergency, the malaria investigation and control unit has changed some of its policies, concentrating on its blood slide surveys within the areas around military camps. During the year, a total of 23,942 malaria blood slides was taken in 15 co[illegible]ties. In cooperation with the U. S. Public Health S[illegible]rvice, the war areas malaria program now has 350 people employed."

Telling of the work of the expanded State Laboratory of Hygiene, Dr. Reynolds reported:

"During 1942 a total of 692,231 examinations were made on specimens sent to the laboratory, as compared with 575,312 the previous year. Serological tests for syphilis still comprise the principal load of the laboratory so far as specimens are concerned. In 1942 there were 613,251 such tests, compared with 485,243 in 1941. Last year there were 216,066 tests made for the Selective Service System, and in 1941 there were 57,755 from this source.

"The demands upon the laboratory for typhoid vaccine increased markedly during 1942, when 891,164 cc. were distributed, compared to 629,767 cc. in 1941."

Dr. Reynolds told of the increased load on the Division of Vital Statistics due to the war and the increasing birth rate.

"The death rate from all causes in 1942 was the lowest on record, having been only 8.1 per 1,000 population. There were 90,056 births recorded, births

outnumbering the 29,613 deaths in the State by 70,443. In addition to the regular birth certificates, there were more than 75,000 delayed birth certificates issued during the year."

Dr. Reynolds outlined in detail the work of the following activities: Preventive Medicine, county health work, epidemiology, laboratories, vital statistics, sanitary engineering, oral hygiene, nutrition, school health coordinating service, summer teacher training conferences, and public health publicity, all of which showed progress, he said.

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The North Carolina State Board of Health has announced the re-election of Dr. Carl V. Reynolds as Secretary and State Health Officer and Dr. George M. Cooper as Assistant State Health Officer for terms of four years each. The Board, at the same time, re-elected Dr. S. D. Craig of Winston-Salem as president and Dr. J. N. Johnson of Goldsboro, member of the Board representing the dental profession, as vice-president. Dr. Craig named Dr. Hubert B. Haywood of Raleigh and Dr. Johnson to serve with him as members of the executive committee, of which he is the chairman.

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A statement by Mr. W. Murray Linker, Senior Sanitarian on the Staff of the State Board of Health, shows how the Board of Health is protecting the interests of the public in regulating the slaughtering and handling of meat.

"In 1937, the State Board of Health submitted a regulatory bill to the Legislature. The Legislature passed an enabling act which provided for the enforcement of regulations governing the operation of meat markets, and abattoirs, or places where meat was slaughtered, handled, or sold to the public. It is believed that this act represented the first State-wide law of this sort in the United States . . .

"In order to forestall certain black market operations in the meat industry and prevent the great waste in essential inedibles, the OPA and State War Boards recently have demanded definite minimum sanitary requirements in the slaughter of meat. The sanitation of abattoirs will continue to improve rapidly under this war emergency program. No permits to slaughter meat will be issued by any local war board unless the abattoir in which the meat is to be slaughtered meets with the approval of the State Board of Health . . .

"Our retail markets are operated on much higher standards of sanitation than our abattoirs. They are graded routinely on a numerical basis, and, as in the case of restaurants, are awarded Grade A, B, or C. Those that do not rate as much as 70% must cease operating or become subject to indictment until they are able to comply wtih the law and thereby receive a re-inspection and a permit to resume. Before a market may open, a permit must be secured from a local health department or the State Board of Health. Before this permit is issued, a survey of the building and facilities is made by a sanitarian to determine if the necessary standards can be maintained."

* * * *

The protection given the public by the State Board of Health in the matter of hotel and eating house inspection has been discussed by Mr. M. M. Melvin, Chief Sanitary Inspector of the Board's Division of Sanitary Engineering, as follows:

"North Carolina was the first State in the union to recognize the importance of safeguarding the public by the enactment of a law in 1921 governing the sanitation of hotels and restaurants. Strange as it may seem to us now, this law was not sponsored by the health authorities, but by the North Carolina Traveling Men's Protective Association and the better hotel and restaurant operators. This initial law applied only to the larger hotels and restaurants, those most frequented by the traveling public. . . .

"In 1935, an amendment was passed by the Legislature giving a new definition to the terms 'cafe' and 'hotel'. Although this amendment provided for the inspection of many places which were exempt under the original act, it did exempt boarding and rooming houses where the majority of the boarders and roomers received accommodation for a week or longer. We, therefore, ran into many obstacles in enforcing the law, as the burden was on the inspector to prove in court that the majority of the roomers or boarders were not regulars.

"In 1941, the present law was enacted. This act is an enabling act which authorizes and empowers the State Board of Health to adopt and enforce regulations governing the sanitation of hotels, cafes, restaurants, tourist homes, tourist camps, summer camps, lunch and drink stands, sandwich manufacturing establishments, and all other establishments where food is prepared, handled, and served to the public at wholesale or retail for pay, or where transient guests are served food or provided with lodging for pay. . . .

"While we readily admit that the hotel and restaurant sanitation program is not what we would like for it to be, a lot of progress has been made and we have been informed by representatives of the Public Health Service and military authorities that the regulations as now constituted are probably the best in the United States."

News Notes From the Bowman Gray School of Medicine of Wake Forest College

Dr. William Dock, Professor of Pathology at Cornell Medical School, acted as visiting Professor of Medicine at the Bowman Gray School of Medicine from June 10 to 18.

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Dr. George Harrell, Associate Professor of Preventive Medicine, left for Honduras on May 23. He will spend a month in the United Fruit Company Hospital at Tela, Honduras, studying tropical diseases.

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Dr. Robert R. Garvey, Professor of Clinical Urology, has recently returned from a visit to various medical schools and clinics on the Eastern Seaboard.

Buncombe County Medical Society

The Buncombe County Medical Society has recently been forced to move its library from the City Hall to a new location over Goode's Drug Store. This move was necessitated by the Army Flight Command's taking over the City Hall. The library contains approximately 4000 volumes.

The society is holding only one meeting a month for the duration of the war, as one third of the active members are in the armed forces.

Forsyth County Medical Society

The Forsyth County Medical Society met on May 4 at the Robert E. Lee Hotel in Winston-Salem. Dr. George Harrell discussed "War and Post-War Tropical Diseases", and members of the Society who were on the program of the State Medical Society presented their papers at this meeting.

News Notes From the North Carolina Tuberculosis Association

The meeting of the Board of Directors of the State Association was held in Raleigh, May 10. The following officers were elected for the Association: President, Dr. R. L. Carlton, Winston-Salem; Vice-President, Dr. David T. Smith, Duke University; Secretary, Mrs. Marie B. Noell, Raleigh; Treasurer, Dr. J. J. Combs, Raleigh; Frank W. Webster, Raleigh, Executive Secretary; Mrs. C. C. Hook, Charlotte, Honorary Vice-President. The Executive Committee elected in addition to the above officers were: Dr. William H. Smith, Goldsboro; Dr. P. P. McCain, Sanatorium; Dr. M. D. Bonner, Jamestown. Dr. Derwin Cooper of Durham and the Reverend Olin Fox of Goldsboro were elected as Representative Directors. All board members but two, whose terms expired this year, were reelected for two more years. Mrs. A. H. Elliot of Wilmington and E. J. Sharp of Kannapolis were chosen to fill these two vacancies.

The annual report and financial statement for last year and the suggested program and budget for 1943-1944 were presented and duly approved. The executive secretary was authorized to add another field worker and office worker to the present staff.

The National Foundation for Infantile Paralysis

A project which will make The National Foundation for Infantile Paralysis the only complete central, authentic source of information on Infantile Paralysis in the world was announced recently by Basil O'Connor, president of the Foundation.

A complete bibliography of all scientific literature that ever has been published pertaining to infantile paralysis is being compiled by the Foundation, and is expected to be ready for publication in book form in the early part of 1944. The first volume will contain a record of all scientific material on poliomyelitis published in the world up to the end of 1943. Subsequently, the data will be kept up to date by publication of annual supplements. Brief abstracts of the more important articles will be included in the bibliography to be published by the Foundation.

* * * *

The National Foundation for Infantile Paralysis and the University of Michigan have joined in a long-range program for the training of doctors, public health workers and laboratory technicians to study infantile paralysis and other virus diseases, it was announced recently in a joint statement by Basil O'Connor, president of the Foundation, and Dr. Alexander G. Ruthven, president of the University.

This program, which has been developing for three years, will be expanded to its full scope about June 1 when the University opens its new three-story building for its School of Public Health at Ann Arbor, Mich.

The new structure will house a unit devoted entirely to work in virus diseases, particularly infantile paralysis. The virologists who will be trained under the program will be prepared to attack the whole realm of virus diseases, including not only infantile paralysis but also influenza, atypical pneumonias, St. Louis and equine encephalitis, measles, chicken-pox, smallpox and mumps.

To aid in the necessary planning and execution of such a project, the National Foundation now has made a three-year grant, totaling $120,000, to the University, Mr. O'Connor announced.

International College of Surgeons

At the fourth International Assembly of the International College of Surgeons to be held at the Waldorf Astoria Hotel in New York City on June 14, 15, 16 dealing with the subjects of "Rehabilitation" and "War Surgery", the tentative program arrangements will be as follows:

1. Papers will be read by eminent authorities in the Grand Ballroom during both morning and afternoon sessions.
2. Continuous round-table discussions on Rehabilitation, War Surgery, Care of Veterans and Allied Subjects have been scheduled to run for the duration of the Assembly.

News Notes

The Ashe County Memorial Hospital staff held its regular monthly meeting at the Hospital in Jefferson on May 28. Dr. Fred Hubbard of North Wilkesboro was welcomed back as consulting surgeon after nearly a year's absence in the army medical corps. The following officers were elected to serve during the ensuing year: Chairman, Dr. Dean C. Jones; vice chairman, Dr. Ray; secretary, Dr. C. Pardue Bunch.

Pediatric Antiques on Tour

It has been well said that more progress has been made in pediatrics during the past three or four decades than in all the time before that.

As applied to the feeding part of pediatrics, the Mead Johnson Collection of Pediatric Antiques bears eloquent witness to the great strides made. Without such evidence, it would be difficult, indeed, to imagine our own grandparents being fed from some of these odd-shaped utensils that defied thorough cleansing. To be sure, sterilization and pasteurization were not then in vogue. Not all babies received breast milk in abundance. In the days when wet nurses were common, some of these enterprising women literally did a wholesale business, managing to nurse three or four infants.

The baby's cereal of a century ago was simply stale bread lightly boiled in water, wine or beer. Butter or sugar might be added but the use of milk was regarded as fraught with danger. It was thought, according to Dr. T. G. H. Drake, "Milk might bring on the watery gripes, or the infant might imbibe with the milk the evil passions and frisky habits of the animal supplying the milk."

From a personal hobby enjoyed by the late E. Mead Johnson, Jr., the Collection of Pediatrics Antiques, illustrated in the pages of a catalogue just issued, has evolved into one of considerable historical importance, depicting as it does the progression of infants' feeding vessels from the Greece of twenty-five centuries ago down to time within our own memory.

The Collection has been steadily growing in size and scope and is of increasing interest for teaching purposes via the historical route. The destruction of original sources caused by the war tends to add to the value of these objects.

Hence it is that by request, the Collection now goes on an annual pilgrimage to colleges, hospitals, museums, libraries and other institutions of learning. Arrangements may be made for "stop-overs" upon application to the curator. Mead Johnson & Company, Evansville, Indiana, U.S.A.

BOOK REVIEWS

Diseases of the Skin. By Oliver S. Ormsby, M.D., Rush Professor of Dermatology, University of Illinois; and Hamilton Montgomery, M.D., Associate Professor of Dermatology and Syphilology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. Sixth edition, thoroughly revised. 1360 pages with 654 figures. Price, $14.00. Philadelphia: Lea and Febiger, 1943.

This massive volume is the most extensive American treatise dealing with the skin and its diseases. In its 1360 pages are included every condition which involves the skin. Following an introductory section of 115 pages dealing with the anatomy, chemistry, symptomatology, etiology, pathology, classification and other general considerations of skin diseases, the book discusses the specific conditions under the broad headings of: I, Hyperemias and Inflammations; II, Hemorrhages; III, Hypertrophies; IV, Atrophies; V, Pigmentary Affections; VI, Metabolic Diseases; VII, Neoplasms; VIII, Chronic Specific Inflammations; IX, Neuroses; and X, Parasitic Infections. Following this are considerations of the appendages (sweat glands. nails, and mucous membranes).

The book is really encyclopedic in its coverage of the subject, and this fact should make it exceedingly valuable to the general practitioner as well as to the specialist in this field. To the former it should serve as a source of information on any problem confronting him in practice; to the latter it is valuable for the detailed consideration of any subject. The book is well written in a simple, straightforward style. The 654 figures containing 723 illustrations and 6 colored plates are excellent, with a fidelity to reality that should aid in making even obscure conditions recognizable. The ability to recognize and identify any skin involvement is important to the general practitioner, and this book should prove of greatest value in helping him attain this goal.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D., Professor of Medicine, University of Alabama, Birmingham, Alabama. Fourth Edition, Thoroughly Revised. 849 pages. Price, $8.00. Philadelphia and London: W. B. Saunders Company, 1943.

This new edition of a well-known book has been revised to include the advances of recent years in dietetics and nutrition. The first third of the book is devoted to nutrition in health, food products and their preparations, and dietetics in general. The remainder of the volume is devoted to a detailed consideration of diets in disease and special feeding problems. The treatment of the subject is practical and should appeal to the general practitioner. An appendix containing useful tables relating to nutrition and metabolism adds to the value of the book. Diet and nutrition play so important a part in modern medical practice that every physician must keep abreast of the recent developments in this field. Dr. McLester has succeeded in presenting the subject in a clear and complete manner.

Gynecology. By Lawrence R. Wharton, Ph.B., M.D., Associate in Gynecology, The Johns Hopkins Medical School; Assistant Attending Gynecologist, The Johns Hopkins Hospital; Consultant in Gynecology, The Union Memorial Hospital, Hospital for Women of Maryland, Sinai Hospital and Church Home and Infirmary. 1006 pages with 444 illustrations. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1943.

In the preface, Dr. Wharton states that this book is written in an effort to put in simple and clear form the main facts about gynecology. He has tried to distinguish between fact and fiction, to stress established principles and, in discussing unsettled problems, to consider representative opinions, however divergent they may be. His book covers the subject of gynecology very well. It is well organized and clear and concise in its description of the various gynecological lesions. Each chapter is begun with a short classification of the material which is contained in it. This brief classification should be of great assistance to the student in organizing material, and in looking up any phase of a given subject.

The book is well illustrated, and the primary criticism of the illustrations is the large amount of space devoted to the operative treatment of various lesions. The illustrations are largely those of Max Brodel and his daughter, Miss Elizabeth Brodel, and are excellent in their detail.

The chapters on endocrinology are clear and concise, and a very fair evaluation of endocrine therapy is given. The section on female urology covers the common urological lesions of the female, and closely correlates urinary tract pathology with gynecological disease. The author points out the importance of correct diagnosis and the frequency with which such lesions are associated.

This book is excellent for both the student and the practitioner. The bibliography given with each chapter is complete enough to permit further study on any problem, and references are largely to the recent literature.

Doctor Pryor. An Autobiography. By J. W. Pryor, M.D. 312 pages. Price, $3.00. Cynthiana, Kentucky: The Hobson Press, 1943.

Dr. Pryor, who has enjoyed the privileges of viewing life, medical education and practice for over half a century, has set forth his observations and experiences in this book.

Dr. Pryor received his medical education at the University of Missouri in 1875-76 and subsequently entered practice in that state and later in Kentucky. During his early years in medical practice it was Dr. Pryor's privilege to assist in the introduction of surgery, ether anesthesia and radiology in the middle South.

In 1890 Dr. Pryor became a member of the faculty of the University of Kentucky, where he taught premedical anatomy and physiology until his retirement in 1929. During this time he contributed much to our understanding of the development of the skeletal system through his extensive research in this field.

The book contains considerable information on the political background of the University of Kentucky, as well as the author's impressions gained during travel abroad.

A Manual of Clinical Therapeutics. By Windsor C. Cutting, M.D., Associate Professor of Therapeutics, Stanford University School of Medicine, San Francisco, Calif. 609 pages. Price, $4.00. Philadelpha and London: W. B. Saunders Company, 1943.

As a result of the introduction of many useful and effective drugs in medical practice the subject of therapeutics has assumed a new importance in the medical curriculum. Unfortunately the teaching of the subject in most medical schools is still not on a par with the emphasis which the subject deserves. Dr. Cutting has epitomized the subject in a very concise and practical manner in the present manual. The book should appeal to the medical student as well as to the general practitioner as a resume of the therapeutic action of drugs in human disease.

A Guide to Practical Nutrition. Edited by Michael G. Wohl, M.D., and John H. Willard, M.D. with an introduction by Morris Fishbein, M.D., Editor, Journal of the American Medical Association. 98 pages with index. The Philadelphia County Medical Society, Philadelphia, 1943.

This pamphlet comprises a series of articles on nutrition, sponsored by the Committee on Nutrition and Deficiency Diseases of the Philadelphia County Medical Society. The articles are reprinted from **Philadelphia Medicine** and distribution was made possible by a grant-in-aid from a Philadelphia pharmaceutical company. The articles are clear and succinct and, although brief, include all the important aspects of nutritional science. Those responsible for the project deserve the thanks of the reader for a practical presentation of an important subject.

Hope Deferred. By Jeannette Seletz. 536 pages. Price, $2.75. New York: The Macmillan Company, 1943.

This first novel by Miss Seletz carries its hero and his friends from their entry into medical school through their internship. It narrates in a pleasant style the vicissitudes of its characters without recourse to the sensationalism so often found in books of this type. The authoress, in her own words, has written the book "as a tribute to that prince among humanists—the man whose supreme kindness is taken for granted, whose daily sacrifices are overlooked, whose sweet nobility is accepted as the commonplace and whose hourly acts of courage are performed behind a mask—the true physician."

Manual of Industrial Hygiene and Medical Service in War Industries: Issued under the Auspices of the Commission on Industrial Medicine of the Division of Medical Sciences of the National Research Council. Prepared by the Division of Industrial Hygiene, National Institute of Health, United States Public Health Service. A Composite Book with 16 Contributors. Edited by William M. Gafafer, D.Sc. 508 pages with 20 illustrations. Price, $3.00. Philadelphia and London: W. B. Saunders Company, 1943.

The political trend of the times has emphasized more and more the individual workman and the problems of labor. This book, consisting of a number of articles by engineers, nurses, physicians, and workers in public health, serves more as a social-economic outline or blueprint of the aims of industrial medicine as seen by the U. S. Public Health Service than as a handbook for industrial disease hazards. The emphasis is placed primarily on war industries. One gets the impression that the material was quickly gathered together in the hope of meeting a need in new industries. Chapters on the problem of occupational diseases and occupational dermatoses cover in some detail specific points from the medical viewpoint. The remainder of the book is more suited to the use of management than to that of the physician.

New Advance in Synthesis of Sulfa Compounds

An improved method for preparing the new sulfa compounds known as sulfanilymidines, which avoids use of expensive chemicals, facilitates manufacture, and makes these drugs more readily available than ever before, is reported by Dr. C. A. Kwartler and Philip Lucas, of the Research Laboratories of the Winthrop Chemical Company, Inc., in the Journal of the American Chemical Society.

The new method of synthesis avoids use of the comparatively expensive paranitrobenzenesulfonyl chlorite, according to the authors. Because the drugs become, in consequence, easier to prepare, supplies will be more readily available to research workers to investigate their efficacy in infectious diseases.

Maurice L. Tainter, M.D., professor of pharmacology, Stanford University, and also professor of pharmacology and head of the division of physiological sciences, College of Physicians and Surgeons, San Francisco, Cal., has been named research director of the Winthrop Chemical Company, Inc., according to an announcement by Dr. Theodore G. Klumpp, president.

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THE COUNTY MEDICAL SOCIETY
A SYMPOSIUM

THE FUNCTIONS OF THE COUNTY MEDICAL SOCIETY

GEORGE L. CARRINGTON, M.D.
BURLINGTON

In the Aegean Sea on the island of Cos and in the neighboring cities of Epidaurus, Cnidus and Pergamus at the temples of Aesculapius the profession of medicine had its beginning as an organized entity. The followers of the healing art formed an esoteric, self perpetuating, closed shop cult. The groups were composed of individual human beings, with the usual diverse interests and characteristics found in similar groups of people. Some were more interested in the spiritual, mental, emotional, and personality problems of their patients, and were the psychiatrists of their day. Some were intrigued by the fevers, dropsies, coughs and general medical ills. These were the internists. Some noted the effects of hot and cold baths and of massage—the physiotherapists of that day. Some liked to work with their hands. These were the surgeons, who set bones, opened abscesses, and lanced boils. There were a few, too, as there always are, who were more interested in financial return than in the benefit to their patients. These were the charlatans of the group, who did whatever they thought would impress the patient and cause him to leave a good votive offering or fee upon his departure. But by and large the ideals of the group were high.

Into this society, the son of one of its high souled members, was born Hippocrates. To him, more than to anyone else, modern medicine owes its great scientific and spiritual heritage. He set the standards of scientific approach in his work and writings; and in his oath for the neophytes molded the system of ethics that has become the tradition of medical practice through more than twenty-two centuries. His first aphorism is as true a summary of our work today as it was in his time:

Life is short and the art is long (the healing art); *the occasion, fleeting* (We have only a little time in which to make a diagnosis and institute treatment); *experience, fallacious* (One time a group of symptoms means one thing and another time they mean something else); *and judgment, difficult.*

Evolution through the years has caused little change in the pattern of our organization. There have been many additions to our knowledge and procedures, the temples have been replaced by medical schools, and admission is no longer restricted to the sons of members; but the basic pattern of medical practice has remained largely the same. The composition of the fellowship, too, has shown little change. There remain the great group of spiritual and scientific-minded brethren. With increased knowledge there have come more specialties and more men who are interested in diverse diseases and methods of treatment. But there are also still in our ranks today, just as there were at the temples on the islands and adjacent shores of the Aegean Sea, those who are charlatans and quacks, seekers for financial rewards, purveyors of useless medicine for a price.

The form of medical practice is probably now in the process of undergoing extensive changes. With the greater diffusion of knowledge in the world, many formerly sacred precincts in finance, religion, politics, med-

Read before the Officers' Breakfast, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

icine and other fields have been invaded by the laity. These invasions will increase. Consequently the local societies, if they are wise, will keep abreast of these trends—not blindly oppose all change but try to guide the changes into the right channels and to preserve the better elements of independent practice. This can probably best be done if organized medicine initiates the changes. Success is more apt to attend the proponents than the opposers.

As a society the local medical unit, I am confident, will find itself useful and most successful by following the Hippocratic lead of high ethical ideals and scientific interests. The scientific program is the life of the society. Anything that chokes out the scientific program chokes out the life of the society. Conversely, scientific medical interests build the society.

There are certain suggestions that I would offer for the making of a good county medical society. They are:

1. Have regular meetings on a set day each month.

2. Small societies do best with a dinner meeting. The dinner makes the members feel more friendly and helps to prevent friction in small groups.

3. Inculcate a spirit of tolerance.

4. Do not devote much time to discussion of the financial side of practice, fee schedules and such matters.

5. Get the business done and go on to the scientific program.

6. Get a good program committee and have real programs.

7. Encourage the members to prepare papers. Nothing formulates one's knowledge of a subject so well and organizes it for use so clearly as writing a paper.

8. In smaller societies have case reports and discussions.

9. Get good specialists to give talks on their fields of work.

Good programs require a lot of hard work done not just by one person but by several. Real scientific programs, however, offer about the only means that a county society has of pulling the poorer members up and of preventing the better men from being leveled down scientifically and spiritually.

THE REQUISITES OF A GOOD COUNTY MEDICAL SOCIETY PRESIDENT

VERNE S. CAVINESS, M.D.
RALEIGH

The county medical society is the essential component part of organized medicine. No chain is stronger than its weakest link, and there is a growing need for the medical profession to repair its weak spots and work towards a stronger organization. It is only by having stronger and more closely allied local units that we can strengthen the state societies and the national organization.

A good county medical society is greatly to be desired and worth seeking after; it can be developed and made the most valuable factor in the lives and work of its members. The first essential in improving a society is the list of officers. All officers are very important, but the president is the most important. A good secretary can hold an organization together, but the president is the one who can give the added zest and direction needed to make the difference between a *good organization* and "just another organization."

Just as the county society is the fundamental element in organized medicine, so the individual physician is the fundamental part of the county society. We are liable to overlook the fact that as a group physicians are the most highly educated members of the population. The better trained physicians receive about ten to thirteen years of training after completing high school. The ethical standards by which physicians live are higher than those of any other profession. Is it reasonable to suppose that such a group could be led by anyone who is inadequately trained or lax in his ethics? This question should serve to emphasize the importance of careful selection of all officers and committees for medical organization. Far too often a physician is selected for an office because he wants to hold the office—even though only for selfish reasons. The society inevitably suffers from this method of selection. Fortunately medical organizations survive—perhaps they are tarnished, but still they survive—in spite of poor leadership. Eventually, a good president will be elected and the progress of the society under his leadership will be ample proof of the importance of careful selection of all officers.

The president of a county medical society should be a doctor who has the respect and esteem of the public and of the other members of the profession. He should be well trained. A knowledge not only of medicine but also of civic affairs, sociological needs, economics, and other social sciences is highly desirable for a good president.

The president of a county medical society should not be too young. Experience adds much poise and polish that can never be attained in any other way. Without any effort to decry youth and its insistent demands for the limelight, it can be said that the presidency of a medical organization should not go to a person who is too inexperienced in dealing with the public and—that which is often far more difficult—with the medical profession.

Education and training and experience are all very important, but the president must also be a man of integrity. Otherwise he cannot enjoy the confidence of his associates or of the public. By "a man of integrity" I do not mean merely one who will not steal the meagre society funds, but one who can be depended upon to follow the wishes of his confreres as shown by resolutions adopted in meetings and also in general dealings with the public when there has been no official action taken by the society. A county society president should not forget that he is the official representative of his associates and that the medical profession may be unjustly judged and censured on the basis of his action.

A president should conscientiously observe medical ethics. He should be competent to make proper appraisals of matters of ethics, and should be a man who can be depended upon to exercise such ability. The public thinks that medical ethics are a set of rules designed for the protection of the physician; far too often physicians think the sole purpose of medical ethics is to prevent any of their dissatisfied patients from consulting a new physician, perhaps one who is better trained and able to give the patient superior service. Medical ethics have one chief purpose—to protect the patient—, and if all doctors could practice ethics from this angle it would improve the public attitude towards the profession.

The president should possess definite qualities of leadership; otherwise, how could he lead his society? The purpose of organized medicine is mutual assistance and advancement for the physicians. Leadership is essential to avoid wasted effort from cross purposes and to enable the society to formulate constructive plans and carry them through. However a good president should not be domineering or unyielding. He should be a leader—not a dictator.

A president should have an active interest in organized medicine. First of all, he should be an active, cooperative member of his county society who has been in the habit of attending the meetings regularly and performing such duties as may have been assigned to him; if not, there is no reason to expect him to do better after election to the presidency than before. He should have very definite ideas and information regarding the purposes of organized medicine and should be able to help develop a professional consciousness among the other physicians in his county. He may not agree with all the policies and actions of his county society, nor of the state and national organizations, but as a good president he will follow the will of the majority, subordinating himself to the organization. This is essential whether he is right or wrong. If he is right and the organization wrong, the will of the organization must be followed until he can prove himself right and have the policies of the organization changed. Such a change may be impossible, but the majority must rule in a democracy. The president must not be dogmatic in his views and must keep an open mind on all medical matters. He should be willing to be convinced when he is wrong, and always ready to go along, as the leader, with the majority.

A good president needs a thorough knowledge of current progress in medicine, yet withal, he should be conservative. Such knowledge is gained by keeping up with current medical literature and by attending the meetings of the national medical organizations, such as the American Medical Association or the meetings of his specialty group, if he is a specialist. Being conservative is equally as important as being up to date. Many widely-heralded drugs have proven to be ineffective or actually harmful. This emphasizes the truth of the old adage by Alexander Pope:

Be not the first by whom the new is tried
Nor yet the last to lay the old aside.

The better physicians are progressive, yet conservative.

I hope I have portrayed the fundamental character of a good president clearly enough for us to draw a few conclusions as to the traits that should inevitably be found in any one of such character, whether he be a physician or a member of any group of citizens.

Such a person can reasonably be expected to be unselfish. A very large percentage of physicians are thoroughly unselfish—doubtless far more so than any other group. Being unselfish, he will recognize that election to the presidency of his county society is not an honor. It never should be intended nor considered an honor; it is rather a trust, a very high trust, and an assignment to the most difficult task the society has to offer. Any honor accrues not to the individual but to the society. This trust calls for intensive, hard work and neglect of personal affairs. Cheap personal publicity has no place in a progressive president's program and he will be more interested in the welfare of his society than in seeking personal publicity at the expense and to the detriment of the society. He will have no aims for personal aggrandizement. The good president avoids local medical politics and petty controversies. Such activities would be incompatible with his willingness and desire to serve the public and the profession to the best of his ability. Apparently, self-seeking medical politicians ignore their Hippocratic oath. They know that the office should seek the man, and that a man should not seek medical office. But they have reason to think that the office will not seek them, and fortunately they are usually right in this respect.

The good president should have all the qualities and attributes described above. Essentially, these are qualities that are not likely to be cultivated; most of them must be inherent, or they do not exist. However, there are other important factors that are essential to a good president, which can be acquired by the man who possesses the qualities already described.

The good president should familiarize himself with the constitution and by-laws of his local county medical society and of his state society and see that they are duly observed. He should also have a good knowledge of the workings of the American Medical Association. It is assumed that he will have studied the prescribed duties of the office to which he has been elected. He should have studied Cushing's Manual and Robert's Rules of Order and should have observed their operation in parliamentary bodies.

The Program Committee is a prescribed standing committee consisting of the president, the vice president, and the secretary. A good president will direct this committee in the arrangement of a program that will be of such caliber that the members of the society will attend the meetings. He will not have meetings without prepared programs. He will know what that would do to attendance. Also, the programs will be arranged far enough in advance of the meetings (usually at the beginning of the year) to permit adequate preparation by the essayists. And equally as important, all meetings will begin promptly at the prescribed time.

With his knowledge of parliamentary procedure, he will preside at meetings in such a manner as to provide an atmosphere of decorum; he will not permit local petty controversies to progress to such a stage that the well being of the society will be jeopardized. He will remember that a good presiding officer is a benevolent tyrant, and he is likely to lean more to the benevolent side.

He will be fearless if he knows he is right, yet prudent and discreet. He will always follow the course that augurs best for the organization. There will be no thought of personal honor or personal gain in his program; there is no place for it in medical organizations.

Perhaps you think this description is Utopian? Occasionally it is, and all of us know of county medical society presidents who could be pointed out as representing all that a good county medical society president should *not* be. But these are in a minority—fortunately for the medical profession as well as for their county societies. Far more often we see presidents who conform more or less closely to this "Utopian" pattern. The temperament of a good physician tends to keep him out of scandals and he naturally is the type of man who should be a good leader. A majority of our physicians attempt to follow the teachings of Aesculapius, and many make excellent presidents of county medical societies.

There is an army axiom which may be applied to the good president of a county society: "The man who knows how to lead has first learned how to obey." And similarly, as the greatest teacher of all time

expressed it: "Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant." (Matthew 20: 26, 27.)

THE FUNCTIONS OF A COUNTY MEDICAL SOCIETY SECRETARY

O. L. McFADYEN, M.D.
FAYETTEVILLE

First I should like to compliment Dr. Carrington and Dr. Caviness on their splendid discussions of this phase of medicine. I was especially interested in what they said relative to our medical history. We who practice medicine here in North Carolina today have a wonderful heritage. Those of you who read the article by Dr. Hubert A. Royster in last Sunday's *News and Observer* realize something of the effort and leadership of these earlier men of medicine. In my own county of Cumberland we have some of the old medical records. I have in my possession a copy of the 1850 fee bill which gave in detail the current medical charges of that day. For extracting molar teeth the fee was 50c for the first extraction and 25c for each additional extraction. Blood letting was greatly in vogue at that time, and the fee for the first letting was $1, and for each additional bleeding 50c. I also have the early Secretaries' book in which many of our most distinguished doctors kept their records in long hand. Later several of these men served as president of our State Medical Society. Surely the doctors of North Carolina have a heritage of which they can be justly proud.

What I shall now say is based on my experience as secretary of our county and district societies, where I have served for the past twenty years. It is experience that I have gained by trial and error, and I hope it may prove of value to you.

First I want to discuss the plan of meetings. Civic organizations have a definite day and hour of meeting. Why should we not set aside a certain day and hour on which to meet? The proper place to meet is very important; try to select a place in pleasant surroundings where there will be no interruptions. The size of the room is important. A well filled room or compact gathering lends warmth that you do not get if your group meets in a room too large. Give some consideration to the arrangement of tables and don't hesitate to use place cards, for in this way you can frequently bring about a closer relationship between members. Of course I know that most of you do not have factional feelings in your society, but if you do, try using a member who is a good buffer and let him help you with your problems. Programs are the very essence of any organization, and especially does this apply to medical groups. Your programs must be diversified and must have an appeal for the general practitioner as well as the specialist. I have found that a mixed program is always more successful. By a mixed program I mean one presented by both local and visiting doctors. It has been my experience that regardless of the local man's ability and regardless of how well he has prepared his paper, he can not draw the attendance that a visiting man does. However, I would not discourage but would rather encourage local men to present papers.

Secretaries have a great responsibility in keeping the membership intact. Don't hesitate to call a member who frequently misses a meeting. Tell him you have missed him and need his support. In our county we frequently have 100 per cent meetings, and I think this is due to several factors, one of which is our self imposed regulation that requires members to attend 60 per cent of the society meetings or be dropped from membership. Civic clubs have such a ruling, so why should not our professional organization? You might ask what is to be gained by dropping a member. My answer is that as yet we have not been forced to drop any.

Don't ever let your members get in arrears with their dues, no matter who they may be. Most of the fault finding is from those who do not attend regularly and who let their dues get in arrears. It has been my experience that the young men just beginning to practice medicine pay much more promptly than do the older men. Let your members know that this is their society and that they are not conferring a favor on you by paying their dues promptly; that your effort is gratis and is for their benefit.

A secretary should know his members. Visit them at their offices occasionally; it will do you both good. Frequently some honor is bestowed upon a member. Let the press know the details so that the public may share in the knowledge of this honor.

Some time ago my society instructed me

as secretary to write the insurance companies, giving them a list of all members who were in good standing and requesting that they review their list of examiners and see whether they were members of the society. The results were good, but I suspect I was criticized behind my back. However, I don't think any insurance company wants to carry liability or malpractice insurance on any doctor who is not a member in good standing in his medical society.

In my opinion the county medical society is the greatest factor in organized medicine today, and the one that gets the least attention. Our good secretary, Dr. Roscoe McMillan, tells me that there are approximately 650 practicing physicians in North Carolina who are not connected with organized medicine. Think what these men would add to our present organization.

In looking over the program and recent transactions of the State Society I find almost every kind of committee except one on membership. I feel that the State Society should have a membership committee whose duty it would be to devise ways and means of bringing these doctors who practice medicine in North Carolina into our fold. I would suggest that this committee work by inviting adjoining counties to help each other in this matter. A very simple method could be worked out which would pay handsome dividends.

The members who attend our district and state meetings are the leaders in their respective fields, while those who usually stay at home are the very ones who more than any others need the teaching and experiences presented on our programs. I think some organized effort should be made to insure a better attendance at our district and state meetings; for no chain is stronger than its weakest link.

In the three years following the last war more people died from famine and preventable disease than were killed in the war itself, hence the importance attached to the present organization of post-war relief. The principal regional medical officer, British Ministry of Health, holds that the lives and health of millions in Europe as well as the physique and welfare of a generation to come depend on how well this preparatory work is done. He visualizes four principal problems—the provision of food, the supply of medical necessities, the control of such diseases as typhus, malaria, tuberculosis, and dysentery, and the reestablishment of the medical, hospital, and public health services in each country. Ed. Jour. Royal Inst. Pub. Health & Hyg. Mar., 1943.

THE TREATMENT OF HYPERTENSION IN THE LIGHT OF MODERN EXPERIMENTAL INVESTIGATIONS

ARTHUR GROLLMAN, M.D., Ph.D.

WINSTON-SALEM

Recent experimental studies on hypertensive cardiovascular disease have led to the adoption of a variety of new procedures for the treatment of this widely prevalent disorder. Most of these procedures must still be considered as being in a purely experimental stage of development, and further studies will be required before their exact fields of usefulness can be established. It is the purpose of the present paper to review the various methods utilized in the treatment of hypertension in the light of recent experimental studies on the pathogenesis of this disorder.

The term "hypertension" as commonly used refers to a symptom rather than to a disease entity. Elevation of the systolic blood pressure alone without a proportionate increase in the diastolic level—such as occurs, for example, in hyperthyroidism, in aortic insufficiency or in generalized arteriosclerosis—is generally accepted as being of different origin and unrelated fundamentally to those conditions in which an elevation of the diastolic pressure is also present. However, even in cases where both systolic and diastolic levels are elevated it is still unproven whether we are dealing with a single disease entity. Theoretically it is conceivable, as has been suggested elsewhere[1], that hypertension primarily of neurogenic or endocrine origin may have the same end result as that which is renal in origin. This question of the unitary or polygenetic origin of hypertension is of fundamental importance in evaluating the probable effectiveness of a given form of therapy, but it must await further research before it can be answered definitely.

The diversity in the clinical picture of hypertension, with the correspondingly great variation in the pathological findings, make it obvious why no general rules of treatment

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Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

From the Department of Internal Medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

1. Grollman, A., Harrison, T. R., and Williams, J. R., Jr.: Effects of Renal Extract on Hypertension, Bull. N. Y. Acad. Med. 18:190-99 (March) 1942.

are applicable. Moreover, the natural remissions in the course of the disease and the variations in the blood pressure which occur spontaneously render it difficult to evaluate the effectiveness of a given form of therapy unless the most stringent and critical methods of study are utilized. This has not always been done, and many of the conclusions found in the literature are therefore open to valid scepticism.

Diagnostic Survey

A careful diagnostic survey should constitute the first step in the treatment of the patient manifesting an elevation in blood pressure. In rare cases the discovery of a large arteriovenous fistula, of a toxic thyroid, or of a chromaphil cell tumor may lead to a surgical cure of the disease. Unfortunately such conditions are found in only a very small percentage of hypertensive patients and, as has been stated, they are not considered as forms of true hypertension. Search for evidence of abnormalities or infection of the urinary tract is also indicated in the hope that remedy of these may alleviate the hypertension.

One must also determine the stage of the disease as indicated by the nature of the associated induced changes in the eyegrounds, heart, kidneys, and blood vessels generally. And finally it is important to differentiate those patients in whom the blood pressure is labile, often reaching almost normal levels during sleep, from patients in whom the elevation is fixed at a high level. The former group often respond dramatically to psychotherapy, rest and the use of sedatives, and this fact undoubtedly accounts for the claimed efficacy of many forms of treatment which are entirely ineffective in other patients.

In the majority of patients with hypertension, no obvious cause for the disorder can be detected by the usual laboratory and clinical examinations. They are therefore referred to as having "essential" hypertension. The fact that in this group of patients one can usually elicit a family history of hypertension suggests that the condition may be due to some hereditary intrinsic deficiency or dysfunction.

General Measures

Scores of medicinal agents have been recommended for the management of hypertension ranging from obnoxious herbs, such as garlic, to refined vitamin preparations. Dietary regimens in which protein intake is limited have also been advocated from time to time. The claims for the efficacy of these procedures are attributable to the relative ease with which subjective improvement may be induced in patients suffering from hypertension. This is illustrated by the report of Ayman[2], who found improvement in 82 per cent of a series of 40 patients treated with a few drops of aqueous hydrochloric acid daily.

Psychotherapy, hygienic measures, including rest and a well-ordered daily routine, reduction of weight in cases of obesity, and the judicious use of sedatives remain, however, the only measures which experience has shown to have any therapeutic worth in the management of patients suffering from essential hypertension. Many such patients are free of symptoms and become aware of the disease as a result perhaps of a routine examination. Tact in the management of these patients is of more importance than any of the medicinal measures now available. As has been so aptly stated by Fishberg[3], such individuals "not only need no treatment whatsoever, but are much better off without it." This statement remains true so long as we do not have in our possession a specific and rational form of therapy which acts in a manner analogous to that of insulin in diabetes.

There is no valid evidence to indicate that dietary restriction of meat or other proteins is of benefit in uncomplicated essential hypertension. Stringent dietary measures are neither required nor desirable. In patients in whom hypertension is complicated by renal or cardiac disease, the restrictions and procedures used in these disorders are obviously indicated. In most cases of hypertension secondary to chronic glomerular nephritis, the elevation in blood pressure is, however, mild and the primary disorder involves the excretory function of the kidney rather than its presumed action in maintaining a normal blood-pressure level.

The restriction of protein and salt in cases of hypertension is based on the view that a reduction in the excretory work of the kidney may aid in preserving its function in the maintenance of a normal blood pres-

2. Ayman, D.: Evaluation of Therapeutic Results in Essential Hypertension; Interpretation of Symptomatic Relief, J.A.M.A. 95:246-49 (July) 1930.
3. Fishberg, A. M.: Hypertension and Nephritis, ed. 4, Philadelphia, Lea and Febiger, 1939.

sure. However, there is no experimental evidence to indicate that increased excretory work increases the degree of hypertension. The finding that salt may be added to the diet of animals with experimental hypertension without any appreciable effect on the blood pressure[4] is in agreement with the clinical observation of the ineffectiveness of restricting salt in this disorder.

Thiocyanates

Among the medicinal agents, potassium or sodium thiocyanate has been most widely advocated in the management of essential hypertension. The thiocyanate ion exerts a sedative action and its effects in hypertension are probably attributable to this rather than to any specific anti-pressor activity.

For optimal results a blood concentration of 8 to 12 mg. of the drug per 100 cc. must be maintained. There is a wide variation in the dosage required by different individuals to maintain this blood level, and hence, determinations of the thiocyanate content of the blood must be made at repeated intervals. These are easily done with the aid of a commercially available kit intended for the use of the general practitioner. Blood levels above 14 mg. per 100 cc. are dangerous, and sudden death has occurred in patients in whom this level has been exceeded. The drug may relieve the nervousness, insomnia, and headache so often complained of by hypertensive patients. Frequently it increases the weakness and fatigue, and it may increase the size of the thyroid. Toxic effects include nervousness, dermatitis, nausea, vomiting, purpura, decreased libido, congestive heart failure, angina pectoris and mental confusion. The toxic effects may be elicited at relatively low blood levels (6 or 7 mg. per 100 cc.), but most individuals tolerate higher levels without evidence of toxicity[5].

The use of thiocyanates should be restricted to patients without a previous history of angina pectoris, congestive heart failure, renal insufficiency or encephalopathy. Patients past the age of 60 do not tolerate the drug well[6].

The value of thiocyanate therapy has been disputed. Kurtz, Shapiro and Mills[7] reported subjective improvement in 63 per cent of their patients. The blood pressure in this group dropped from an average of 197 systolic, 115 diastolic prior to treatment to 156 systolic, 94 diastolic under treatment, but most investigators have found a less striking reduction in blood pressure[8].

Management of Complications

The principal usefulness of medicinal, dietetic and other forms of treatment is in the management of the complications of hypertension. When the disorder ultimately results in cardiac failure, renal failure, or encephalopathy, these complications demand careful management, and essentially the same procedures are used as when these disorders occur from other causes.

The nitrites, although formerly much used, are now generally limited to the treatment of angina pectoris complicating hypertension. In the experimental animal the administration of nitrites is ineffective in lowering the elevated blood pressure[4] and clinically they have been found ineffective as therapeutic depressor agents in hypertension. Some types of headache in hypertensive patients respond well to the administration of nitrites[3].

Venesection is often a useful procedure where cardiac failure, particularly as manifested by attacks of cardiac asthma, is imminent. It is also of aid in the management of some cases of intractable headache. Lumbar puncture is frequently of value in encephalopathy to relieve the increased intracranial pressure.

Digitalis remains the drug of choice in congestive failure complicating hypertension. Its use has recently been reviewed by Flaxman[9]. This drug exercises the same beneficent effect which it does in congestive failure due to other causes. This is true not only in those patients with fibrillation or other abnormalities in rhythm but also in those with a normal rhythm. In the latter the clinical condition rather than a slowing of the cardiac rate serves as a criterion of the adequacy of digitalis dosage. However, even when compensation is restored with digitalis,

4. Grollman, A., Harrison, T. R., and Williams, J. R.: Therapy of Experimental Hypertension, J. Pharm. and Exper. Therap. 69:75-80 (May) 1940.
5. Wald, M. H., Lindberg, H. A., and Barker, M. H.: Toxic Manifestations of Thiocyanates, J. A. M. A. 112:1120-24 (March) 1939.
6. Robinson, R. W. and O'Hare, J. P.: Further Experiences With Potassium Sulfocyanate Therapy in Hypertension, New Eng. J. Med. 221:964-69 (Dec.) 1939.
7. Kurtz, C. M., Shapiro, H. H. and Mills, C. S.: Results of Sulphocyanate Therapy in Hypertension, Am. J. M. Sc. 202:378-92 (Sept.) 1941.
8. Page, I. H. and Corcoran, A. C.: Hypertension: A Review of Humoral Pathogenesis and Clinical Treatment, Advances in Internal Medicine, 1:183-224, 1942.
9. Flaxman, N.: Clinical Value of Digitalis in Hypertensive Heart Failure, Am. J. M. Sc. 203:741-51 (May) 1942.

death may occur suddenly as a result of uremia, coronary thrombosis, or cerebral hemorrhage.

Among other drugs useful in the management of congestive heart failure complicating hypertension may be mentioned theophylline and the mercurial diuretics, the xanthine derivatives (aminophylline), and the opiates.

Surgical Procedures

Increasing attention has been devoted in recent years to the possibility of treating hypertension by various surgical procedures. The earliest methods used involved denervation or decapsulation of the kidneys, section of the splanchnic nerves, and partial adrenalectomy. Despite the claims advanced by their advocates, these procedures have not come into general use. The principal operations advocated at present involve either unilateral nephrectomy or extensive ablation of the sympathetic chain. The former procedure is based on the assumption that the abnormal kidney elaborates a pressor principle which induces hypertension; the latter on the assumption that hypertension may be due to nervous stimuli or at least that interruption of the vasoconstrictor impulses to the blood vessels may allow their relaxation, with relief of the hypertension.

The results of removing the damaged kidney in unilateral renal disease has not proven to be as successful in causing a decline in blood pressure as was anticipated. The rationale for this procedure is based on earlier experiments on dogs. More recent studies on larger groups of animals (rats) fail to support the basic assumption upon which the operation was performed[10]. In any case the application of this procedure is limited. In a series of 150 patients with severe unilateral renal disease reported by Crabtree and Chaset[11] only 14 were hypertensive. In most patients with hypertension the renal involvement is bilateral. Abeshouse[12] reported a marked reduction in blood pressure lasting two to seven years following the removal of a kidney in hypertensive patients with unilateral renal disease in only 3 out of 16 cases.

10. Grollman, A.: The Modern Concept of Hypertension, North Carolina M. J. 4:41-44 (Feb.) 1943.
11. Crabtree, E. G., and Chaset, N.: Vascular Nephritis and Hypertension; A Combined Clinical and Clinicopathologic Study of 150 Nephrectomized Patients, J.A.M.A. 115:1842-46 (Nov.) 1940.
12. Abeshouse, B. S.: Hypertension and Unilateral Renal Disease; Review of Literature and Report of Sixteen Cases, Surgery 9:942 (June) 1941.

Encouraging results have been reported in cases of unilateral atrophic pyelonephritis if nephrectomy is performed early in the course of the disease before vascular changes have occurred in the other kidney[13].

Equally disappointing results have followed surgical removal of a diseased kidney in patients with genito-urinary anomalies, renal lithiasis, hydronephrosis with infection, and similar conditions. Palmer, Chute, Crone and Castleman[14] observed hypertension in 22 per cent of 212 cases presenting anomalies of the genito-urinary system. In 34 of the 47 cases, the involvement was unilateral, but in the 9 cases in which unilateral nephrectomy was performed partial relief of the hypertension was observed in only 1 patient. Nephrectomy is contraindicated in minor lesions, for it may aggravate the hypertension. Before resorting to the operation one must be assured that the other kidney has no vascular disease and that it will not be subject to recurrent attacks of pyelitis.

The generally accepted notion that relief of urinary obstruction will alleviate hypertension has also been questioned of late. The undoubted decline in blood pressure which occurs under these conditions may perhaps be merely incidental to the rest and general measures to which the patient is subjected, rather than to the relief of the obstruction *per se*[8].

The incidence of hypertension in individuals with urologic disease is still debatable. Several authors[15] report a higher incidence of hypertension in such individuals, but others fail to confirm this conclusion[16]. In any case it is desirable to investigate thoroughly every patient with hypertension in order to detect incipient lesions of the urinary tract, which may be entirely asymptomatic. However, the advisability of nephrec-

13. Braash, W. F., Walters, W. and Hammer, H. J.: Hypertension and the Surgical Kidney, J.A.M.A. 115:1837-41 (Nov.) 1940.
14. Palmer, R. S., Chute, R., Crone, N. L., and Castleman, B.: Renal Factor in Continued Arterial Hypertension Not Due to Glomerulonephritis, as Revealed by Intravenous Pyelography; Study of 212 Cases, With Report of Results of Nephrectomy in 9 Cases, New England J. Med. 223:165-71 (Aug.) 1940.
15. (a) Wosika, P. H., Jung, F. T. and Maher, C. C.: Urologic Hypertension as an Entity, Am. Heart J. 24:483-93 (Oct.) 1942.
    (b) Ratcliff, R. H. and Conger, K. B.: Incidence of Renal Hypertension and of Cure by Nephrectomy (Evaluation of Pyelography) J. Urol. 48:136-41 (Aug.) 1942.
    (c) Flocks, R. H.: Clinical Studies on the Relationship Between Renal Disease, Renal Function and Arterial Blood Pressure. J. Urol. 47:602-13 (May) 1942.
16. Friedman, B., Moschkowitz, L. and Marrus, J.: Unilateral Renal Disease and Renal Vascular Changes in Relation to Hypertension in Man, J. Urol. 48:5-15 (July) 1942.

tomy should be determined primarily by the nature of the renal lesion rather than by the hope of lowering the blood pressure, as has been shown in the recent survey of the literature by Sensenbach[17].

Sympathectomy

Several different types of sympathectomy are employed as a treatment for hypertension. The supradiaphragmatic splanchnic resection advocated by Peet[18] and his collaborators[19] has given less satisfactory results in the hands of others[20]. The subdiaphragmatic approach of Allen and Adson[21] is advocated only for patients whose blood pressure under certain conditions may be made to return to normal and is contraindicated in patients over 50 years of age, and in those who have had attacks of angina, heart failure, renal insufficiency or manifest marked arteriosclerosis[22].

The most radical procedures for sympathectomy are those of Smithwick[23] and Grimson[24] in which there is complete excision of the sympathetic chain and its aortic branches and interruption of the communicating rami from the ninth dorsal to the first lumbar nerves. However, even this procedure fails to increase the blood flow through the kidney[8]. In dogs with hypertension which has been induced by applying a clamp to the kidney by the Goldblatt technique, a procedure similar to those advocated by Smithwick and Grimson fails to reduce the blood pressure; but it (and not any less complete removal) will lower the blood pressure in animals rendered hypertensive by excision of the pressor sensitive areas of the cardioaortic region and of the carotid sinuses[25]. To anticipate a beneficent effect following sympathectomy in hypertension, one must assume either that the disease as it occurs in man resembles this so-called "neurogenic" hypertension in animals or that the operation induces a beneficent functional alteration in arteriolar tone.

Renal Extracts

Considerable interest has been aroused by the demonstration of the effectiveness of renal extracts in reducing the blood pressure of hypertensive animals[26]. These extracts have been employed by several groups of investigators with promising results. However, it is evident that the extracts used by different authors are not identical, and some of the reported drops in blood pressure are attributable to non-specific effects[27]. Moreover, the expense of preparing these extracts from kidney tissue is so exorbitant as to preclude their wide clinical application.

More recently attention has been directed to the blood pressure lowering effects of certain marine oils. It was first claimed that vitamin A was responsible for the observed effects, but recent work has demonstrated that this is not the case and that the active principle is derived from precursors present in various marine oils free of any vitamin A[28]. These studies are still, however, in a purely experimental stage and require further work and clinical testing before it can be determined whether they possess any therapeutic merit.

Conclusion

Successful application of therapeutic measures presupposes a knowledge of the pathogenesis of any given disorder. The inadequacy of our presently available measures for the treatment of hypertension reflects our relative state of ignorance regarding the fundamental cause and nature of this disorder. However, the intensity with which researches in this field are now being pursued and the new light being shed upon the subject augurs well for future progress.

Summary

The various methods used in the treatment

17. Sensenbach, W.: An Evaluation of the Effects of Unilateral Nephrectomy in the Treatment of Hypertension. In press.
18. Peet, M. M., Woods, W. W. and Braden, S.: Surgical Treatment of Hypertension, J.A.M.A. 115:1875-85 (Nov.) 1940.
19. Woods, W. W.: The Surgical Treatment of Hypertension: Results of Clinical and Experimental Investigations, J. Urol. 48:16-22 (July) 1942.
20. (a) Rytand, D. A., and Holman, E.: Arterial Hypertension and Section of Splanchnic Nerves, Arch. Int. Med. 67: 1-24 (Jan.) 1941.
(b) De Takats, J., Heyer, H. E. and Keeton, R. W.: Surgical Approach to Hypertension, J.A.M.A. 118:501-7 (Feb.) 1942.
21. Allen, E. V. and Adson, A. W.: Physiologic Effects of Extensive Sympathectomy for Essential Hypertension; Further Observations, Ann. Int. Med. 11:2151-71 (June) 1938.
22. Hines, E. A., Jr.: Treatment of Hypertensive Disease, Proc. Staff Meet. Mayo Clinic 17:184-87 (March) 1942.
23. Smithwick, R. H.: Technique for Splanchnic Resection for Hypertension, Surg. 7:1-8 (Jan.) 1940.
24. Grimson, K. S.: Total Thoracic and Partial to Total Lumbar Sympathectomy and Celiac Ganglionectomy in the Treatment of Hypertension, Ann. Surg. 114:753-775 (April) 1940.
25. Grimson, K. S.: The Surgical Treatment of Hypertension, Collective Review, Surg. Gynec. & Obst. 75:421-34 (Nov.) 1942.
26. Grollman, A., Harrison, T. R. and Williams, J. R.: Reduction of Elevated Blood Pressure by Administration of Renal Extracts, J.A.M.A. 115:1169-76 (Oct.) 1940.
27. Harrison, T. R., Grollman, A., and Williams, J. R.: Separation of Various Blood Pressure Reducing Fractions of Renal Extracts, Tr. Assoc. Am. Phys. 57:187-195, 1942.
28. Grollman, A., and Harrison, T. R.: Reduction of Blood Pressure of Hypertensive Rats by Administration of Certain Marine Oils, Proc. Soc. Exper. Biol. & Med. 52:162-5 (March) 1943.

of hypertension have been reviewed and discussed in the light of recent experimental studies on the nature and pathogenesis of the disorder.

Abstract of Discussion

Dr. Wingate M. Johnson (Winston-Salem): Anyone who has followed the work of Dr. Grollman and his associates, as I have, must have been impressed with the intellectual honesty of their approach to this problem, and I am sure that his paper read here today will confirm that impression.

The emotional factor plays a tremendous part in hypertension. I am sure that every one of you have seen patients turned down by the army or navy because of a blood pressure reading taken soon after some bad news had reached them or some shock, or following a long period of overwork or tension. In most such patients the blood pressure will come down after a few days' rest. Just a few months ago one of our most prominent citizens wanted to go into defense work and was horrified when he was not accepted because his blood pressure was found to be 186 systolic, 110 diastolic. That man came to me, asking me what to do. I told him that the first thing to do was to find out what the cause was, if possible. I found that he had been working day and night under tremendous pressure, trying to get his business affairs in shape so that he could leave them for an indefinite period of time. I told him that he needed a rest, first of all, before we could determine further what to do. I put him to bed for a few days, and at the end of a week his blood pressure had come down to 130 systolic, 80 diastolic, and has been down ever since. It dropped 10 to 15 degrees a day under rest.

I have had patients come to me because of sudden dizziness and nausea and have found their blood pressure from 20 to 60 mm. above normal. Then within a day or two it will come down very rapidly. Often there is a history of emotional shock or some disturbance, but in other cases no such history can be obtained.

Dr. John Symington (Carthage): I should like to ask Dr. Grollman what he considers a normal blood pressure.

Dr. Grollman: I appreciate very much Dr. Johnson's remarks. One certainly has to keep in mind at all times the temporary elevations of blood pressure of neurogenic origin which subside spontaneously in evaluating any form of therapy. It is still debatable whether neurogenically induced hypertension, if continued over a prolonged period, may give rise to a sustained chronic form of the disease.

In answer to Dr. Symington's question, it is impossible to place any arbitrary limit which one considers as a normal pressure. The many variables affecting blood pressure must be taken into account in evaluating a given determination.

Complications of Syphilitic Aortitis.—Depending on the location and extent of the syphilitic process, the primary lesion of aortitis may be complicated by saccular aneurysm, aortic insufficiency or stenosis of the coronary ostia with resultant angina pectoris. Syphilitic myocarditis occurs but rarely. The suspicion of syphilitic involvement in any of the above conditions is strengthened if the onset is relatively abrupt, the past history of heart disease is negative, and the clinical course is rapidly progressive. Male patients predominate in the ratio of approximately 5:1.—Herrman L. Blumgart, M.D.: The Detection and Treatment of Cardiovascular Syphilis, New England J. Med. 223:444 (September 19) 1940.

SOME ASPECTS OF MENTAL HYGIENE OR PREVENTIVE PSYCHIATRY

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Hygiene has been defined as the science of preventing disease and teaching men and women how to secure the maximum of health. It has been said that "The objective of Mental Hygiene is successful living." One of the greatest needs of medicine today is the proper presentation of medical information to the public; and one of the most important needs of psychiatry at present is the proper presentation of its objectives and methods of care and treatment to the medical profession.

A few years ago a member of our State Board of Medical Examiners decided to ask one question on mental hygiene each year throughout his six-year term of office as examiner. The first year this question was asked: "State your understanding of the importance and meaning of mental hygiene." One young doctor answered in effect that it was a dreadful and loathsome disease which should be prevented and eradicated as soon as possible. At a meeting of the North Carolina Neuropsychiatric Society a few years ago the distinguished medical teacher, Dr. Frederic M. Hanes, of Duke University, said that many people, even some doctors, thought of mental hygiene as something connected with sex. While these are extreme, and by no means representative, statements, there is indeed far too little general understanding of mental hygiene and preventive psychiatry.

Prevalence of Mental Illness

The United States Public Health Service reported that in 1939 two hundred million dollars were spent on mental illness, and that less than 1 per cent of this sum went for research. Out of every twenty children in this country, one child at some time in his life will be hospitalized for mental disease, and another child will be disabled mentally but not hospitalized. There are 6,000,000 feeble minded persons in the United States, and 80-95 per cent of these are not in institutions. There are 100,000 alcohol and drug

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addicts, 400,000 epileptics, and between 800,000 and 1,000,000 mentally sick. The hospital beds in this country devoted to mental illness outnumber beds for all other forms of disease. The tremendous importance of custodial care of mentally ill persons should be stressed. It is of therapeutic value to the patient and often it saves the family as an orderly functioning unit of society.

In 1939 Dr. Louis Hamman of Baltimore wrote in *Mental Health*, a publication of the American Association for the Advancement of Science[1]: "In order to furnish tangible evidence of the important part psychiatric problems play in the practice of medicine I have reviewed the records of 500 consecutive patients who consulted me. To give the figures any value I must explain that my practice covers the whole field of internal medicine and that patients come to me or are sent to me chiefly for diagnosis. I have no reputation as a psychiatrist nor am I suspected of having unusual interest or talent in that field. Not one of the 500 patients consulted me on account of an overt psychiatric condition . . . Among the 500 patients there were 116 (23%) without any discoverable organic cause for the symptoms of which they complained. In addition, there were 56 (11%) presenting minor organic lesions, but with symptoms which could not possibly be explained by the lesions alone. In other words, one-third of the patients suffered solely or predominantly from functional disorders."

I think it is evident that this problem of preventing psychiatric conditions is not one for the specialist alone, or for mental hospitals, asylums and sanatoria, but also one for the internist, the surgeon, the pediatrician and all those practicing any branch of medicine. Indeed, it is a pressing problem for the social worker, the minister, and other non-medical individuals.

There are many approaches to this problem of preventive psychiatry. Perhaps the most promising field of effort—one not yet adequately developed—is provided by outpatient departments of the State Hospitals and welfare agencies which keep in touch with patients, especially paroled patients. A general program of education in mental hygiene and preventive psychiatry could well be promoted by our trained State Hospital personnel.

1. Hamman, Louis, in Mental Health, Washington, American Association for Advancement of Science, 1939, pp. 470.

Causes of Mental Illness

In any consideration of the preventive aspects of mental illness we are at once confronted with the disturbing question as to the cause of mental illness. Experience with the mentally ill and work in the field of research have shown consistently that there is no single cause, but rather a combination of many causes often working together in varying combinations to bring about the final breakdown. There may be a superficial precipitating occurrence that seems to push the patient over the normal line, but usually this is not the most important factor.

Prevention of Mental Illness

This multiplicity of causes for mental illness offers a wide range of opportunity in the field of prevention. For example, there are unlimited possibilities for preventing hereditary influences — among them, birth control, sterilization, marriage control and segregation. It is possible to alter community conditions that burden many people —economic and social insecurity, poor living conditions, occupational misfits and educational misplacements. The proper treatment of disabling disease, such as syphilis and the severe infections, and of malnutrition, with resulting vitamin deficiencies, is of great importance in forestalling mental illness. Hearing and sight deficiencies, which may sometimes be prevented or partially overcome, are often important causes of maladjustments in the life of those so afflicted. These examples are indicative of the wide range of opportunity in the field of prevention.

One frequent concept of preventive psychiatry has been called "presumptive prevention". This method is based on the assumption that if we control a condition frequently preceding mental illness we may sometimes prevent the illness itself. For example, dementia praecox seems often to occur in the shut-in personality, and so, in dealing with this type of individual in our child guidance clinics, we stress the adoption of more social and active habits. We can never be sure what we have accomplished or prevented, but such efforts appear to be worth while. A psychiatrist, reporting cases in which such presumptive prevention was tried, writes as follows[2]: "Although the

2. Levin, H. L.: The Role of Child Guidance in the Prevention of Schizophrenia (Dementia Praecox). New York State J. Med. 33:805-12 (July 1) 1933.

four problem children seemed to have been definitely started on the praecox route, psychiatric intervention appeared to have vitiated some of the malignant elements in the environment and brought about for a period now of from two to four years, an apparent arrest of the praecox process. The question is raised whether similar intervention during the childhood of the four adult praecox cases might not have been the means of preventing chronic, if not life long, psychosis."

In many cases early treatment prevents the appearance of more serious pathology later on. For this reason we recognize the importance of treating alcoholism early and of giving guidance to the type of patient who runs from doctor to doctor, and to those people inclined toward delinquency, overscrupulousness, laziness or undue moodiness. It has been shown that about one half the people who develop dementia praecox exhibit signs apparent to teachers which might lead to early treatment and preventive measures[3].

Dr. Adolf Meyer makes clear this preventive aspect as follows[4]: "We are at times made to believe that all our mental hygiene work and effort aims largely at prevention of 'insanity and crime', just as the early advocates of psychopathic hospitals made it look as if, through the creation of a psychopathic hospital in each state, the existing state hospital care would then be made less expensive and perhaps in part unnecessary. To be sure, early work means a heading off of some of the disastrous depth of aberration and deviation and much unnecessary blundering. But the chief goal is much more direct; it offers prompter and more and more enlightened help both to patient and family and to the community in respect to really new problems, largely left to themselves before; it is a direct service to the positive needs and opportunities of the community in behalf of health, happiness, efficiency and social adaptation."

Another type of prevention consists in removing the person from the environment that troubles him; and still another in removing clearly proved causes, such as syphilis and the misuse of drugs.

There is also the empirical method, the value of which we know, but perhaps do not clearly understand. An example of this is the religious approach. We can not undo the death of a loved one, but we can point out a reasonable attitude toward death.

Dr. George S. Stevenson says[5], "Some prevention falls definitely within the range of psychiatry, but the family doctor, the lawyer, the minister, the employer, the nurse, the social worker, the teacher, and the public health functionary, all meet with preventive opportunities as part of their daily jobs. The royal road to prevention is traversed by those persons working as far as possible in unison, but each one of them as a part of his daily routine has an opportunity to carry on his job in a way that will enhance the mental health of those with whom he is dealing."

Possibilities for Prevention of Mental Illness in North Carolina

How, then, can we make a practical application of these observations to our mental hygiene problem in North Carolina? Most important is the development of sound habits of living along sound health principles. Although the application of eugenic measures that tend to give people the best possible endowment at birth (control of marriage, sterilization, limitation of conception) is restricted, much can be done through these methods with a broader understanding of their use.

The protection or safe-guarding of normal functions offers a vast field of prevention to the general practitioner. Dr. George S. Stevenson says[5]: "Fatigue, insufficient sleep, poor nutrition, variations in atmosphere, smoldering infections, inadequate convalescence from illness, disordered metabolism and oxygenation, vitamin deficiency, endocrine imbalance, allergies, alterations of blood content, circulatory disorders and disturbances of smooth muscle function all have their concomitant disturbances of behavior and personality and these may at times be major considerations. Unfortunately, these physiological disorders often operate at subclinical levels that are not taken seriously by the physician because they do not involve acute or very evident incapacity. The consideration of these subtle influences needs to be given more serious attention in medical education if the best preventive opportunity is to be grasped."

3. Kasanin, J. and Veo, Louise: A Study of the School Adjustment in Children Who Later in Life Become Psychotic, Am. J. Orthopsychiatry 2:212-30 (July) 1932.
4. Meyer, Adolf: Individualism and the Organization of Neuropsychiatric Work in the Community, Ment. Hyg. 9: 673-85 (Oct.) 1925.
5. Stevenson, George S.: Preventive Psychiatry, read before the Conference on Psychiatry, Ann Arbor, Oct. 28, 1942.

Most important of all perhaps is the integration of state hospitals in a practical program with all agencies—child guidance clinics, outpatient development, public school and medical school teaching of the problems as a whole. We need to have all agencies coordinated in one supreme effort to meet the great need of human beings for a fuller life, and to prevent mental illness in North Carolina.

Conclusion

In closing, I should like to recommend to you as medical students and future practitioners of medicine two books: *Psychotherapy in Medical Practice* by Maurice Levine[6], and *Mental Illness: A Guide for the Family* by Edith M. Stern and Samuel W. Hamilton[7]. The former should bring to you an understanding of the importance of psychotherapy in all branches of medical practice, and the latter should prove helpful in the event of mental illness occurring in your own family or in the families of your patients. The deep grief, the terrible confusion and bewilderment often seen in families of mentally sick patients is impossible to comprehend unless you have seen it or have had such an unfortunate experience in your own families. It would be well for you, as prospective doctors, to fortify yourselves with better understanding so that you may meet, without too much shock, the inevitable mental enfeeblement which comes soon or late in most families—if not in youth and middle life, then in later years through cerebral arteriosclerosis or general senile degeneration. Few of us, if we live long, can hope to go through life without meeting intimately some of these tragedies.

6. Levine, Maurice: Psychotherapy in Medical Practice, New York, The Macmillan Company, 1942.
7. Stern, Edith M. and Hamilton, Samuel W.: Mental Illness: A Guide for the Family, New York, The Commonwealth Fund, 1942.

Fatigue as an Ally of Disease.—Many physicians . . . fail to consider fatigue as a close ally of many conditions they are called upon to treat. In the busy rush of daily practice the tendency too often is to think in terms of the specific derangement instead of the derangement plus the person who is suffering. An over-all look at the patient as a person—including his way of living, his family, his problems, his anxieties, the pressures under which his life is spent—provides the main source of our clinical knowledge of what fatigue is and the effects it may produce in human beings.—Arlie V. Bock: Fatigue, Tr. and Studies Coll. Physicians Philadelphia 10:76 (June) 1942.

ACUTE LEUKEMIA AS A TERMINAL EVENT IN POLYCYTHEMIA VERA: REPORT OF TWO CASES WITH AUTOPSIES

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The purpose of this paper is to report 2 cases of polycythemia vera in which acute leukemia developed as a terminal event. Both patients were followed carefully through several years, while receiving spray x-ray therapy for polycythemia, and autopsies were performed in both cases.

Case 1. H. B., a 54 year old watch maker, was admitted to the neurological service of Duke Hospital in August, 1940, complaining of numbness and tingling in both legs of ten years' duration. His legs had not been weak or stiff and he had had no difficulty in walking except in the dark, when he tended to stagger. The family history and past history were non-contributory. Three weeks prior to admission he began to experience a boring sensation in the left hip with occasional pain shooting down the back of his left leg.

Physical examination revealed a moderately obese man of 54 who was alert, intelligent and cooperative. The skin and mucous membranes were of high color and there was no papillary atrophy of the tongue. The remainder of the general physical examination was not remarkable, except for a definite enlargement of the liver. *Neurological examination* revealed the following abnormal findings: 1. Bilateral partial nerve deafness. 2. Slight, rhythmical tremor of the head. 3. A definite sensory level at the costal border corresponding to the seventh thoracic dermatome, below which there was slight hypalgesia bilaterally. This extended downward an indefinite distance over the legs but did not involve the feet or buttocks. 4. Loss of vibratory sense to a No. 128 tuning fork below the costal border. 5. A slight degree of sensory ataxia revealed by heel-knee tests. 6. Absent abdominal reflexes and a bilaterally positive Babinski reflex.

Accessory clinical findings: The hemoglobin was 15.8 Gm. or 102 per cent. There were 4,860,000 red blood cells and 11,250

From the Duke University School of Medicine, Durham, N. C.

TABLE 1

Date	Hgb. Gm.	RBC Mill.	WBC	Seg.	Stab.	Juv.	Eosin.	Baso.	Myelocytes	Myeloblasts	LL	SL	Monocytes	Remarks and Treatment
3-40	15.8, 102%	4.86	11,250	55			5					32	8	Hepatomegaly
27-40	17.8, 115%	5.42	9,600	60	1		4				7	19	9	Nicotinic acid and thiamine chloride orally. Spray x-ray treatment, 100 r. units.
5-41 Blood	15.2, 98%	4.92	5,650	66	3		2	1			9	13		Continue on nicotinic acid and thiamine chloride.
Bone Marrow			38,000	34	13	18	4		3		9 9	11 11	7 7	Normoblasts 1/100 w.b.c. Erythroblasts 23/100 w.b.c. Reticulocytes 6%
17-41	15.5, 100%	5.19	8,350	69	1		3	1			1	19		Patient depressed; pain in right arm. Continue nicotinic acid and thiamine chloride. Stramonium 2½ gr. t.i.d.
25-41	17.7, 114%	5.36	7,200	66	2		3	1			7	13	8	Spray x-ray, 150 r. units.
0-23-41	16.4, 106%	5.28	10,100	65	4		2				2	20	7	Spray x-ray, 210 r. units.
5-15-42	16.3, 105%	5.13	8,050	67	1		4	1			1	21	5	Spray x-ray, 150 r. units.
5-20-42 Blood	14.1, 91%	4.40	3,200	23	6	2	4				11	9	4 Early 9	Several ecchymotic spots on thighs; weakness and weight loss. Unclassified cell 1/100 w.b.c. Spray x-ray, 800 r. units.
Bone Marrow			95,000				1		40	40		1	2	Unclassified cell 16/100 Normoblasts 1/100 w.b.c. Erythroblasts 6/100 w.b.c.
5-42 Blood	8.1, 52%	2.65	20,000	1	1						1	3	Monocy. 6 Early 75 Abnorm. 1 Monobl. 12	Patient pale. Bleeding from mucous membranes and into skin. Liver palpable. Spleen palpable. Febrile. Two transfusions.
Bone Marrow			90,000	2	1				2		1	13	Monocy. 6 Early 41 Monobl. 33	Monocytic leukemia of the Schilling type.

white blood cells; the differential formula was normal. Blood and spinal fluid Wassermann tests were negative. The urine was normal. Spinal fluid proteins totaled 106 mg. per 100 cc. A gastric analysis revealed a normal amount of free hydrochloric acid.

X-rays of the dorsal and lumbar spine showed extensive arthritic changes. A spinal cord tumor was suspected and a lipiodol injection was done, but no block or filling defect was found.

A hematological consultant felt that the patient had polycythemia, and the neurological manifestations were thought to be due to this disease. Large doses of thiamine chloride were recommended. The patient was started on spray x-ray therapy in October, 1940. The hematological studies and treatment are shown in table 1.

When the patient was seen on July 20, 1942, some two years after his admission, he was obviously quite ill. The temperature was elevated and remained irregularly elevated until death. The spleen was palpable 10 cm. below the costal margin in the left anterior axillary line. The liver was felt 4 cm. below the costal margin in the right midclavicular line. Within the next two weeks he developed a progressive ulcero-gangrenous process in the mouth and throat, with enlargement of the lymph nodes in the neck and axillae. He died on August 7, seventeen days after the leukemic phase was recognized, having shown a progressive aregenerative type of anemia.

A postmortem examination was made soon after death. The *anatomical diagnosis* was: Monocytic (?) leukemia with infiltrations of bone marrow, spleen, liver, lymph nodes, kidneys, stomach, large intestine, gallbladder; extensive hemorrhage into kidney pelves, gastro-intestinal tract, skin and mucous membranes; lipiodol in the subarachnoid space; subarachnoid adhesions; arteriosclerosis with marked calcified coronary sclerosis; focal pancreatic fibrosis; fibrous pleural adhesions, right.

Case 2. T. A., a 60 year old civil engineer, was seen first on April 1, 1934, with urinary symptoms referable to benign prostatic hypertrophy. These symptoms were relieved by a transuretheral prostatic resection. Five years later, in September, 1939, he suffered a thrombosis of the parieto-temporal branch of the left costal cerebral artery, and was again admitted to Duke Hospital. He re-

TABLE 2

Date	Hgb. Gm.	RBC Mill.	WBC	Seg.	Stab.	Juv.	Eosin.	Baso.	LL	SL	Monocytes	Remarks and Treatment
4-1-34	15.8, 102%		4,200									Benign prostatic hypertrophy. Transurethr prostatic resection
8-6-36	19.3, 125%		6,000									
9-6-39	19.8, 127%	6.33	8,800	84	2		4			5	5	Cerebral thrombosis
4-1-41	17.5, 113%		6,680	71	13	1	3	1		4	5	500 r units as spray x-ray treatment betwe 4-9-41 and 4-25-41
7-7-41	14.6, 94%	5.10										
7-22-42	17.5, 113%	5.71										
8-4-42	16.0, 103%	5.12										
												8-5-42 -50 r units 8-12-42—50 r units 8-19-42—75 r units
1-30-43 Blood	8.5, 55%	2.70	5,950	1	1	1	Myeloblasts 94%			1	2	Hepatomegaly, splenomegaly Bone Marrow: WBC, 200,000; myelocyte B, C, 3%; myeloblast, 97%.

covered slowly from the cerebral accident. In April, 1941, his hemoglobin was found to be 17.5 Gm. or 113 per cent. There were 6,680,000 red blood cells and 11,200 white blood cells, with a normal differential formula. Because of the blood picture and the presence of hepatomegaly it was thought that he might have polycythemia. No bone marrow studies were made on this admission. Previous blood studies and treatment up until the final illness are given in table 2.

Three days before his final admission on January 30, 1943, the patient suddenly developed loss of central vision in the left eye. There was no pain. For the past several months he had been a little short of breath and rather weak. A few days prior to admission he noticed an ulceration on the upper lip.

Physical examination revealed the temperature, pulse, and respirations to be normal. The blood pressure was 140 systolic, 72 diastolic. The patient was a large-framed, well nourished individual who was quite jovial. The speech was somewhat slow and slurred. There was considerable pallor of the skin and mucous membranes, and he was partially deaf. No superficial lymph nodes were palpable. There were several fresh hemorrhages in both eye grounds and a very large hemorrhage in the left macula. The chest was emphysematous with a few atelectatic rales at both bases. The heart was enlarged to the left. There was a rough aortic systolic murmur and a soft apical systolic murmur. The abdomen was distended and pendulous. A firm, tender spleen could be palpated 4 cm. below the costal margin. No free fluid could be demonstrated. The *neurological examination* showed a moderately severe auditory aphasia and alexia and a mild motor aphasia of nominal type. Agraphia was also present. There was a right lower facial weakness. The tendon reflexes were hypoactive and equal and there was a loss of vibratory sensation in the feet.

Accessory clinical findings: The hemoglobin was 8.5 Gm. or 55 per cent and there were 2,740,000 red blood cells and 5950 white blood cells. The color index was 1.01, the mean corpuscular hemoglobin content 31.5 x 10^{-12} Gm., the mean corpuscular volume 87.6 cubic micra, platelets 100,000. Examination of the fresh blood revealed only slight anisocytosis and poikilocytosis. No macrocytes were seen. A study of the supravitally stained preparations revealed a noticeable scarcity of the mature granular elements. There were many type A and B myelocytes and also many myeloblasts. Reticulocytes were estimated at 3 per cent. On darkfield examination about 98 per cent of the immature cells were found to contain granular material characteristic of myeloid cells[1]. The differential formula was as follows: polymorphonuclear segmenters 2, stabs 1, myeloblasts 48, microblasts 1, myelocytes 45, small lymphocytes 2, large lymphocytes 1. The blood Kahn and Kline tests were negative. The urine gave a 3 plus reaction for albumin, and showed 20 to 30 red blood cells per high power field.

Bone Marrow Studies: Material was obtained from the sternum by puncture without difficulty. The white blood cells numbered 200,000. Nucleated erythrocytes appeared to

1. Hansen-Pruss, O. C.: The Circulating Blood Cells as Seen by Darkground Illumination, Am. J. Clin. Path. 6:123-31 (Sept.) 1936.

be present in adequate numbers. Adult myeloid cells were almost completely absent; reticulocytes were estimated at 5 per cent. The differential count showed: myeloblasts 32, microblasts 2, myelocytes 61, small lymphocytes 5.

The patient became decidedly worse on the second hospital day and slowly lapsed into coma. The temperature rose to 40 C., with an increase in pulse rate. Respirations became stertorous in type. The pupils were miotic and the eyes were deviated to the right. Tendon reflexes were not obtainable. The Babinski reflex was positive bilaterally. He died quietly on the fourth hospital day.

An autopsy was performed immediately after death, and the *anatomical diagnosis* was: Extensive subarachnoid hemorrhage with hemorrhage into the fourth ventricle; lobular pneumonia of the right upper lobe; splenomegaly and hepatomegaly with leukemic infiltrations of the bone marrow; fatty infiltrations of the liver; moderate left ventricular hypertrophy and dilatation; chronic pyelonephritis superimposed on arteriosclerotic renal changes.

Discussion

The relation of polycythemia to leukemia has been recognized for years[2]. The literature contains reports of patients who developed an acute myeloblastic leukemia as a terminal complication of polycythemia[3]. It is generally accepted that polycythemia vera represents a dysfunction of the bone marrow featured by hyperactivity of the leukoblastic as well as the erythroblastic tissue[4]. Many patients who have polycythemia vera present a rather marked leukocytosis; sometimes the increase in the peripheral white blood cell count may be so great as to suggest chronic myelogenous leukemia. Since clinically polycythemia is associated at times with a marked hepatomegaly and splenomegaly[5], the similarity to leukemia may be quite striking if a leukemoid blood picture exists. This similarity may be further enhanced if complications such as thrombosis of the hepatic and portal veins occur[6]. Furthermore, instances have been described where polycythemia developed during the course of a true leukemia[7].

In our patient the diagnosis of polycythemia was advanced to explain the persistent erythremia and hyperchromemia in two patients whose initial symptoms and signs were referable to the central nervous system. Both patients had generalized arteriosclerosis, which may have produced a chronic anoxemia of the bone marrow. This condition has been advanced as a possible cause of polycythemia[8]. Both individuals were treated for polycythemia with x-ray administered by the spray method[9]. The liver was palpable in both patients during the erythremic phase, but the spleen did not become enlarged until the leukemic phase developed. The leukocyte count was only slightly elevated initially in the first patient, and soon returned to normal levels; while in the second patient the leukocyte count remained normal during the polycythemic period. The differential white blood cell formula was normal in both patients until the evidence of leukemia appeared.

The bone marrow of the first patient was examined seven months after his first admission and no evidence of leukemia was found. The bone marrow white cell count and the definite increase in the bone marrow erythroblast and reticulocyte counts were suggestive of polycythemia. After this patient had received spray x-ray treatments over a period of approximately fourteen months, the clinical picture changed strikingly. He became weak, lost weight and developed a progressive aregenerative anemia with marked tendency to bleeding. At this time the white blood cell count was below normal and the differential count showed many myelocytes, some myeloblasts and many monocytes and monocytoid cells. The bone marrow was hyperplastic and was filled with myeloblasts and immature monocytes. Shortly before death the peripheral white blood cell count rose and many immature monocytes appeared in the circulation. Because of this and the extensive ulcerogangrenous processes in the mouth and throat,

2. Minot, G. R. and Buckman, T. E.: Erythremia (Polycythemia Rubra Vera), Am. J. M. Sc. 166:488 (Oct.) 1923.
3. Herxheimer, G.: Myeloblastic Leukemia Following Erythremia, Klin. Wchnschr. 1:1458, 1913; Munchen Med. Wchnschr. 61:2373, 1914.
4. Reznikoff, P., Foot, N. C., and Bethea, J. M.: Etiologic and Pathologic Factors in Polycythemia Vera, Am. J. M. Sc. 189:753-59 (June) 1935.
5. Harrop, G. A., Jr.: Polycythemia, Medicine 7:293 (Aug.) 1928.
6. Sohval, A. R.: Hepatic Complications in Polycythemia Vera with Reference to Thrombosis of Hepatic and Portal Veins and Hepatic Cirrhosis, Arch. Int. Med. 62:925 45 (Dec.) 1938.
7. Ghiron, M.: Considerazioni supra un case di eritroleucemia, Fol. hemat. 22:135, 1922.
8. Fitz, R., Walker, B. S., and Branch, C. F.: Polycythaemia Vera: Report of a Case, Arch. Int. Med. 70:919-34 (Dec.) 1942.
9. Pierson, J. W. and Smith, C. D.: The Treatment of Polycythemia Vera by Roentgen Irradiation of the Entire Body, Am. J. Roentgenol. 43:577-83 (April) 1940.

the clinical picture was that of a monocytic leukemia of the Schilling type[10]. Autopsy confirmed the diagnosis of leukemia.

Events in the second patient were similar. After this patient recovered from a cerebral thrombosis, which occurred while his hemoglobin and red blood cell levels were elevated, he received a series of spray x-ray treatments and got along very well until a few days before death. At this time he developed a large hemorrhage in the left eye ground. Blood and bone marrow studies disclosed a myeloblastic leukemia. Within a few days after admission to the hospital he developed a subarachnoid hemorrhage and expired twelve hours later, approximately one week after he consulted his oculist because of blindness in the left eye.

Sometimes it is difficult to differentiate between a true polycythemia and the polycythemic phase of leukemia. In our first patient, however, bone marrow studies, done soon after the onset of polycythemia, excluded the possibility of a coincident leukemia. It is possible that the x-ray treatments delayed the appearance of the clinical manifestations of leukemia.

Another interesting feature is the appearance of leukemia while the patients were receiving spray x-ray therapy for polycythemia vera.

Summary

1. Two cases are reported in which acute leukemia developed as a terminal phase of polycythemia vera.

2. In both patients the leukocyte and differential counts remained normal until the terminal stage of the illness.

3. In both patients the initial symptoms were referable to the central nervous system and occurred approximately two and three years, respectively, before death.

4. In both individuals the leukemic manifestations appeared while they were receiving x-ray therapy of the entire body for polycythemia vera.

5. One patient died with an acute monocytic leukemia of the Schilling type, the other of an acute myeloblastic leukemia.

10. Watkins, C. H. and Hall, B. E.: Monocytic Leukemia of the Naegeli and Schilling Types, Am. J. Clin. Path. 10:387-96 (June) 1940.

FOREIGN BODY IN THE STOMACH. REPORT OF AN UNUSUAL CASE

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Among the variety of objects which have been found in the human stomach are tooth brushes, teaspoons, fish bones, screws, bolts, gallstones, needles, stomach tubes, dental prostheses, forks, carpet tacks, bezoars, phytobezoars, trichobezoars, rubber latex, and Missouri sales tax tokens[1]. We would like to add to this already magnificent assortment of foreign bodies in the stomach a new one—one that, insofar as we can determine, has never been mentioned in the literature.

Foreign bodies may be deposited in the stomach in three ways: (1) by being swallowed, (2) by being formed in the stomach as food or hair balls, and (3) by being deposited from the exterior, either during surgical operations or through fistulous tracts such as those made by gallstones. The vast majority of foreign bodies in the stomach are deliberately swallowed by patients with definite psychoses; however, there are a fair number of patients who ingest foreign bodies in the food, never knowing that they have swallowed them. It is probably to this last group that our patient belongs.

In a review of the literature, it is amazing to find that these patients who have foreign bodies in the stomach, as a rule present very mild symptoms and signs. Hildreth and Casey[1c] reported the case of a patient with involutional melancholia who had with suicidal intent swallowed forty-eight teaspoons, one teaspoon handle, three bolts, one nut, one prune pit, one button, one small piece of glass, two pieces of spring wire, one needle, one piece of cinder, one hair pin, and one lead pencil. The only symptoms were

1. (a) Browne, Donovan C. and McHardy, Gordon: Gastroscopy and the Phytobezoar, Arch. Int. Med. 65:368-374 (Feb.) 1940.
(b) Chalk, S. G. and Foucar, H. O.: Foreign Bodies in the Stomach, Arch. Surg. 16:494-500 (Feb.) 1928.
(c) Hildreth, E. Raymond and Casey, R. B.: Foreign Bodies in the Stomach, J.A.M.A. 102:604 (Feb. 24) 1934.
(d) Inlow, Herbert H.: Shellac Bezoars, Radiology 34: 618-625 (May) 1940.
(e) Kennedy, R. Stewart: Five Hundred Foreign Bodies in the Stomach, Brit. M. J. 1:1262-1264 (June) 1934.
(f) Lederer, Arthur: An Unusual Foreign Body in the Stomach, Radiology, 19:57-59 (July) 1932.
(g) Rivers, Andrew B. and Davison, Hugh L.: Foreign Bodies in the Stomach, Ann. Int. Med. 4:742-751 (Jan.) 1931.

mild attacks of nausea and vomiting and moderate constipation. On the other hand, there are occasional cases in which the symptoms and signs have simulated those of intractable peptic ulcer or gastric carcinoma so closely that eminent surgeons have performed gastrectomies. For instance, Wilmot Adams[2] had a male Chinese patient with a hard epigastric tumor and all of the cardinal signs and symptoms of gastric carcinoma. He diagnosed the case as an inoperable carcinoma of the stomach, and only at the patient's insistence did he finally consent to operate. At operation the hard, palpable mass turned out to be vegetable matter incarcerated in the stomach. Judd and Phillips[3] had a case which they diagnosed as diffuse polyposis with malignant changes. They performed a Polya type resection and found a foreign body in the stomach.

A review of the literature on this subject up to 1924 by Thorek[4] makes no mention of the foreign body we encountered in our case, nor were we able to find such a case reported in the English literature since that time. We believe that the following case adds a new item to an already bizarre collection of foreign bodies found in the stomach.

Report of Case

Mr. R., a retired minister aged 62, was admitted to the medical service of the North Carolina Baptist Hospital on April 19, 1941, with a chief complaint of "stomach trouble" of thirty years' duration. The family and marital histories were essentially noncontributory. The patient had had the usual childhood diseases without sequelae, and had had typhoid fever in 1909 at 30 years of age. For the past five or ten years he had had occasional ankle edema which disappeared at night. The past history was otherwise entirely negative except as related to the present illness.

Thirty years ago the patient had been bothered with attacks of epigastric pain which he described as hunger pains. These usually came on about two or four hours after meals. A few weeks after the onset of these pains the patient had a severe gastric hemorrhage and was in bed for several weeks. He passed some dark blood from the bowel at that time. Following this episode he continued to have attacks of epigastric pain which was relieved by milk and soda. He could eat no raw fruits or fried food and suffered frequently with gas on the stomach after meals. Twenty years ago he had a similar gastric hemorrhage of less severity, and at that time was in bed for several weeks. Following this second attack he remained free from symptoms until March, 1941, at which time he started vomiting undigested food without any particular gastric distress. On two occasions the vomitus resembled coffee grounds. He was examined in another hospital and was told that he had a stenosing pyloric lesion. When his condition failed to show improvement, he decided to come to the Baptist Hospital for treatment. He constantly complained of a foul taste in his mouth and stated that he had lost about 45 pounds in weight during the past few months.

On physical examination the temperature was 98.6 F., the pulse 70, and respirations 20. The patient was a tall, well developed and slightly emaciated elderly male who looked his stated age. He was in no apparent distress. The head, ears, eyes, nose and mouth were essentially normal except for complete adentia. The dental prostheses appeared to be in good condition. The chest was slightly barrel shaped. The lungs were clear to percussion and auscultation. The heart was not enlarged; the rate and rhythm were regular, and no murmurs were heard. The blood pressure was 120 systolic, 80 diastolic. The abdomen was flat and no masses or rigidity were noted; however, there was slight tenderness to pressure in the epigastric region. The liver, spleen and kidneys were not palpable. The genitalia were normal. Rectal examination showed the prostate to be slightly enlarged, but was otherwise negative. The skeletal development was symmetrical and normal. The neurological system was intact.

Accessory clinical findings showed a red cell count of 5,000,000, a hemoglobin of 90 per cent (Sahli), and a white cell count of 6300, with 28 per cent lymphocytes and 72 per cent neutrophils. A gastro-intestinal series showed a constant narrowing, apparently involving the pyloric region with deformity of the duodenal bulb. There was

2. Adams, Wilmot: Case of Vegetable Matter Simulating Carcinoma of the Stomach, Brit. J. Surg. 13:189-190 (July) 1925.
3. Judd, E. Starr and Phillips, J. Robert: Foreign Bodies in the Stomach, S. Clin. North America, 14:543-549 (June) 1934.
4. Thorek, M.: Large Collection of Foreign Bodies in the Stomach, Internat. Clinic 3:282-290 (Sept.) 1924.

moderate delay in gastric emptying, with slight residue at four and one-half hours. The nonprotein nitrogen was 27 mg. per 100 cc. A phenolsulfonphthalein test showed 79.5 per cent secretion. Examination of the urine was entirely negative.

Dr. J. P. Rousseau, attending roentgenologist, was inclined to believe that we were dealing with a chronic cicatrizing ulcer and stated that it was difficult to determine definitely whether it was prepyloric or at the base of the duodenal bulb. We felt that, since many of the lesions undergo malignant degeneration, the patient should have the benefit of gastric resection. The patient was transferred to the surgical service, and after remaining under observation for several days, was scheduled for operation. On the day before the operation was to be performed the patient became suddenly ill with nausea and vomiting. The vomitus contained both bright red blood and coffee ground material. The operation was postponed and conservative measures, including gastric lavage with the Levin tube, were employed. The patient's condition improved remarkably, and on May 1 we performed a Polya type gastric resection. During the operation a mass about the size of the end of one's ring finger was felt about five centimeters above the pylorus, and was thought to be an organic lesion of some sort. The pylorus itself was bound down by fairly dense adhesions and some scarring was present; however, there was no enlargement of the regional lymph nodes. When the lower half of the stomach was removed and opened, the mass was found to be a large and very hard cocklebur. The gastric mucosa was decidedly traumatized and inflamed and there were numerous petechial hemorrhages, especially in the pyloric region, which itself was quite thickened.

The patient's postoperative course was entirely uneventful and quite satisfactory. He was discharged on May 31, 1941, feeling better than he had felt in years. When the patient was questioned on several occasions following the operation, he denied ever having swallowed anything that stuck or scratched his throat.

Conclusion

Inasmuch as so many others have, like us, performed gastrectomies for what turned out to be foreign bodies in the stomach, we wonder if it would not be wise to follow the suggestion of Ruffin and Reeves[5] and subject all of these patients with questionable stomach pathology to gastroscopic examination. Certainly, in the hands of a skilled operator, the gastroscope can do little, if any damage, and it may bring to light certain features that would prevent the necessity for radical surgery.

5. Ruffin, J. and Reeves, R.: The Value of Gastroscopy in the Diagnosis of Phytobezoars. Am. J. Digest. Dis. 5:745-746 (Jan.) 1939.

The Search for Unity

If we are to have a durable peace after the war, if out of the wreckage of the present a new kind of cooperative life is to be built on a global scale, the part that science and advancing knowledge will play must not be overlooked. For although wars and economic rivalries may for longer or shorter periods isolate nations and split them up into separate units, the process is never complete because the intellectual life of the world, as far as science and learning are concerned, is definitely internationalized, and whether we wish it or not an indelible pattern of unity has been woven into the society of mankind.

There is not an area of activity in which this cannot be illustrated. An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique.

In peace, as in war, we are all of us the beneficiaries of contributions to knowledge made by every nation in the world. Our children are guarded from diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind. The best that every individual or group has produced anywhere in the world has always been available to serve the race of men, regardless of nation or color.—Raymond B. Fosdick: The Rockefeller Foundation—A Review for 1941.

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JULY, 1943

SHALL IT HAPPEN HERE?

Shortly after the report of the National Resources Planning Board was made, the indefatigable Senator Wagner of New York, in partnership with Senator Murray of Montana, on June 3 introduced a bill in the Senate which represents the long planned all-out attempt to establish socialism firmly in the United States.

The bill takes in much more than the federal control of medical and hospital practice, but since this phase of it most vitally concerns the medical profession it will be discussed briefly here. A factual analysis of these provisions of the bill is to be mailed to every physician in the United States by the National Physicians' Committee. Let every man read it and then do something about it.

The Wagner-Murray bill (S. 1161) provides for free medical and hospital service for virtually all employed people in the United States, with their dependents.

It proposes placing in the hands of *one man*—the Surgeon General of the Public Health Service—full power to hire doctors and establish their rate of pay and the manner of their pay; to establish fee schedules; to establish qualifications for specialists; to determine the number of patients a doctor may serve; and to determine what hospitals or clinics may provide service for patients.

The bill provides for a "Unified Social Insurance System", with tax payments from virtually all employed people in the United States and insurance benefits for them and their dependents. The system is to be financed by a 12 per cent pay roll deduction (6 per cent from employer, 6 per cent from employee, up to $3,000 per year); a 7 per cent deduction from the income of every self-employed individual (up to $3,000); and (note carefully) a 3½ per cent deduction from salaries of federal, state and municipal employees.

The bill further provides that, in addition to being entrusted with controlling the practitioners of medicine and the hospitals, "the Surgeon General is authorized and directed to administer grants-in-aid to nonprofit institutions and agencies engaged in research or in undergraduate or postgraduate professional education." It has been estimated that the amount available for this purpose would enable the Surgeon General either to assume the total costs of operating all the accredited medical schools in the country, and of subsidizing 22,000 students for the entire medical course, or to duplicate all existing medical teaching facilities and pay 20,000 additional students $700 a year during their entire course.

It is true that mention is made of an Advisory Council of sixteen members to confer with the Surgeon General in carrying out the provisions of the Bill; but the Surgeon General appoints the sixteen members, and they would have no authority. The Surgeon General would be the medical dictator of the country.

An oft quoted expression is most apt: Are we men, or are we mice? If we are men, let's do something! Begin *now* by writing both our senators for a copy of Senate Bill 1161.

THE NATIONAL RESOURCES PLANNING BOARD REPORT

Following at a respectful distance upon the heels of the English Beveridge report, the report of this country's National Resources Planning Board was recently presented to President Roosevelt. It is a logical step in the steady drive that the present administration is making toward socializing the country, and is being followed up by the latest Wagner bill, S. 1161, which was introduced in the Senate on June 3, and which is intended to provide a "Unified National Social Insurance System".

Some idea of the methods which the perpetrators of the report have used to lay the groundwork for the latest Wagner Bill may be gained by a few quotations from Section VIII of Part I. This begins with the expected reference to the high proportion of rejections among the draftees. Next it refers to the "comprehensive report of the Technical Committee on Medical Care" which, in 1938, "revealed an alarming amount of sickness and ill health," and states that "The general findings of this Committee . . . were confirmed by almost every participant in the National Health Conference which called together representative citizens and professional experts from all parts of the country." It may be recalled by those who kept up with this Conference just how "representative" were the "citizens" and how "expert" the hand-picked professionals.

Another example: "Many types of illness, which would be amenable to attack by organized community action, continue to take their toll. Diphtheria and typhoid fever . . . cost the nation 3,000 deaths in 1940. Tuberculosis will yield only to a more complex program"—etc.

It is hard to imagine a more flagrant example of intellectual dishonesty than the deliberate ignoring of the statistics, open to any inquirer, which show that in 1900 the death rate from typhoid fever in the United States was 35.9 per 100,000; in 1940, 1 per 100,000. The death rate from diphtheria in 1900 was 43 per 100,000; in 1940, 1.1. In other words, if there had been no improvement in handling typhoid fever and diphtheria since 1900, there would have been, instead of 3,000 deaths from these diseases in 1940, 102,700. The death rate from tuberculosis has dropped from 280 per 100,000 in 1904 to 43.8 in 1940. All this has been accomplished under the present system of medical practice. Can more be expected in the same length of time from political medicine?

The *New York Times* of March 14 devotes its leading editorial to a discussion of the report of the National Resources Planning Board, and concludes with this thought:

"If the schemes of the NRPB should ever become law, they are bound to produce a profound change in the psychology of the American people and the American way of life for which we are supposed to be fighting. For they mark the beginning of the Europeanization of America. Perhaps their framers have understood the Zeitgeist better than others, but it might be well to know in advance which way they are leading us. Otherwise we may wake up some day and find that we are the dependent and powerless subjects of a totalitarian state, run by our own brand of New Bureaucrats."

* * * *

THE THEORY OF FOCAL INFECTION

Intellectual honesty is an essential attribute of the good physician, but its attainment requires a periodic intellectual housecleaning. Such cleansing operations are painful; for beliefs long and fondly cherished often must be thrown on the trash-pile. In the light of these remarks let us re-examine the *theory* of focal infection.

The highly attractive concept of metastatic infection originating in a surgically accessible focus was popularized by Billings some thirty years ago, and few theories have gained more instantaneous and widespread acceptance, or have influenced more profoundly the practice of medicine. Physicians have accepted the theory as an article of medical faith and it has been responsible for an enormous number of operations, with a not inconsiderable mortality. Adverse criticism has been regarded as heretical, if not actually blasphemous! In spite of this attitude a large body of scientific evidence has accumulated which throws the gravest doubts upon the general validity of the theory of focal infection. Two such critical appraisals, one by Hobart A. Reimann[1] and the other by J. A. Paton[2], of London, have appeared recently, and form the immediate stimulus to these comments.

Reimann's article should be read by all; for it contains a dispassionate, coldly scientific critique of the subject. Paton's paper reviews the results of the mass execution of

tonsils, as practiced upon school children, in a large series of cases. Both authors reach the same conclusion—namely, that the indiscriminate surgical treatment of suspected foci of infection is not only fruitless, but actually harmful. Paton remarks that "the removal of tonsils *increases* susceptibility to upper respiratory infections and the removal of adenoids increases susceptibility to middle ear inflammation." Both authors deplore the highly uncritical attitude of physicians toward indications for operations, and point out that comparative studies of large series of patients reveal no evidence that operative treatment of focal infections influences favorably the course of general, or metastatic disease. Indeed, as Reimann shows, those *not* operated upon do better than their fellow sufferers with similar ailments who are subjected to operations.

It may be too much to hope that a theory so ingrained in medical thought will be made the object of sceptical evaluation by all physicians; but in spite of an occasional seemingly miraculous result, the careful physician will think at least twice before advising his patients to undergo operations which have been proven almost valueless, and which may terminate in serious complications, or death. A high degree of discrimination is imperative in the practical application of the *unproved theory* of focal infection as a cause of disease. The Hippocratic injunction to "do no harm" would seem to be especially applicable to this theory.

1. Reimann, H. A. and Havens, W. P.: Focal Infection and Systemic Disease: Critical Appraisal; Case Against Indiscriminate Removal of Teeth and Tonsils, J.A.M.A. 114: 1-6 (Jan. 6) 1940.
2. Paton, J. H. P.: The Tonsil-Adenoid Operation in Relation to the Health of a Group of Schoolgirls, Quart. J. Med. 12:119-128 (April) 1943.

* * * *

A MEDICAL STUDENT LOOKS AT THE EDUCATIONAL PROGRAM

A letter to his parents from a medical student now in his second year at Harvard is of peculiar interest, since it gives the viewpoint of a highly intelligent young man on the government plan for medical education. It is published in part, with the permission of its recipients. The italics are for emphasis, and comment is unnecessary.

"Well, we got our marching orders from the army last week in the form of an announcement that we could (must?) resign our commissions and get a physical exam for entrance into the army as privates, seventh class, at Fort Devens, Mass., on June 28th. Will stay there a couple of days and then return to our barracks here to pursue the study of medicine. Likewise, the navy has given its men orders for the same sort of thing. We are told that we have no choice in the matter but perhaps it will turn out we do. The navy has given its boys the option of remaining on inactive duty as ensigns or of entering the training program as cadets.

"I haven't decided whether I'm glad or sad about it all. *The only feature I don't like is that of being tied to the Government to the extent of having been educated as a doctor at the public expense.* Though this is forced upon one, it will make in the future very convincing argument in the army or otherwise under the supervision of the Government. What do you think of this aspect of the training program? Do you think it unwise or incompatible with patriotic duty to consider, if we do have choice in the matter, remaining on inactive status and paying one's own way? Actually, I suppose, *there'll be little free choice,* either because of army order or of the pressure of everyone's here going into the program. *One wonders what more he contributes to the war by doing at government expense exactly what he would ordinarily do at his own.* Immediately, however, the prospect of having a uniform, a free education, and fifty dollars a month is pleasing."

* * * *

ANOTHER FATHER-SON COMBINATION

Last month mention was made of the fact that Dr. Donnell Cobb's father was present at the State Medical Society meeting to witness the presentation of the President's jewel to his son. The question was asked if ever before in the history of our Society a doctor had lived to see his son serve as president.

Several correspondents have recalled that in 1922 Dr. W. I. Royster was present when his distinguished son, Dr. Hubert Royster, delivered his presidential address at Winston-Salem. The father was then 77 years old, and lived to be 85.

It should not detract one whit from the notable administrations of Dr. Royster and Dr. Cobb to conjecture that both of them listened to the wise counsel of their fathers in solving the various problems that confronted them.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Report of Case

Mrs. G. H., a 59 year old housewife of American birth and ancestry, was first seen in the New York Hospital in 1940, with typical recurring gallbladder colic. She recovered promptly after cholecystectomy and removal of stones from the common duct. At that time she had a blood pressure level of 160 systolic, 90 diastolic, and a history of mild dyspnea for a year or two. In the next year she had five short bouts of colic, none lasting over thirty minutes.

In October, 1941, she noticed a gradually increasing lump, slightly tender, cephalad to the right clavicle. This mass was excised in November, 1941. She had no fever or leukocytosis at that time.

In July, 1942, she suddenly felt sick and anxious, with anorexia, shortness of breath even at rest, and dull pain in the precordium and left upper part of the chest. Cough came on after several weeks and was very annoying, though non-productive. On August 17 she entered the New York Hospital. She had been in another hospital for four weeks, with fever but no other symptoms than those noted; the diagnosis given was "bronchopneumonia."

She had had migraine in her youth, and occasional ankle edema for years. This had not increased in recent months. She had used cathartics all her life, and had had bleeding hemorrhoids for ten years. She had had nocturia (three or four times) for fifteen years. There was no venereal disease. She had married at the age of 25 and had one miscarriage the first year, and no pregnancy since. The menopause occurred at 50.

Her temperature remained between 37.2 C. and 38.2 C. during the first four days in the hospital, then was normal or subnormal until the thirty-fifth day, when it rose to 38.8 C. It continued to run between 37 C. and 39 C. until her death on the fifty-fourth day. She had no chills. The pulse was 90-100 for the first fourteen days, then rose steadily to 130-140 on the twenty-sixth day, falling gradually to 100 on the thirty-fourth day and remaining between 90 and 110 until death. The respirations were 20-24 up until the last day, when they rose to 36. The blood pressure was 170 systolic, 95 diastolic on admission; 150 systolic, 90 diastolic at the end of the first week; 155 systolic, 80 diastolic at the fourth week; and 125 systolic, 65 diastolic before death.

The patient was edentulous, orthopneic and slightly cyanotic, but quite alert. There were small palpable nodes in the neck, axillae, and groins. The chest expansion on the left was poor and delayed. Heart sounds were regular but faint, and there was a soft, long systolic murmur. The venous pressure was 30 cm. There was a paradoxical pulse demonstrable when a pressure cuff was used. There were physical and fluoroscopic signs of bilateral pleural effusion, with the large heart shadow blending into that of the fluid.

The liver was not palpable and no abdominal fluid was demonstrated. There was edema of the ankles, legs and sacral region. The reflexes were normal.

The urine always contained protein and had a specific gravity of 1.019-25. The red cell count was 4,500,000, with a hemoglobin of 12 Gm. There were 6500-9000 white blood cells, with a normal differential count. The blood urea nitrogen was 21 mg. per 100 cc. Kline and Wassermann tests were negative.

Fluid removed from the left pleural cavity was found to have a specific gravity or 1.013, with 840 white blood cells and 800 red blood cells per cubic millimeter. There were 88 per cent lymphocytes.

The electrocardiogram had a low voltage QRS complex, with inverted T waves in all leads. Because of the fluid in the left side of the chest, kymograms and an x-ray of the heart were not helpful; the mediastinum was not widened at the base of the heart.

Cyanosis and dyspnea continued in spite of therapy. The patient was disoriented toward the last. A lumbar puncture was negative; the cultures of the chest fluid remained sterile.

Discussion

DR. TINSLEY R. HARRISON: The evidence would seem to be convincing that we are dealing with congestive heart failure. The first problem is whether this is myocardial failure of the ordinary type, or something more unusual. Aside from the murmur there is no evidence of endocardial disease. This type of heart failure, in which dyspnea is in

the background, while high venous pressure and hydrothorax are in the foreground, is rather unusual in the absence of tricuspid valvular disease except when we are dealing with a lesion in the pericardium. The paradoxical pulse suggests interference with the filling of the heart and likewise points toward a disorder of the pericardium. I therefore think that the primary problem is not the usual one of myocardial disease with deficient emptying but the unusual one of pericardial disease with deficient filling.

Interference with cardiac filling resulting from pericardial disease may be due to fluid in the pericardium, extensive adhesions to the chest wall, or obliteration of the pericardial cavity and extensive epicardial fibrosis caused by the condition known as constrictive pericarditis. The electrocardiograms, with inversion of all the T waves, as well as the subacute course, suggest the latter condition. It remains for us to determine the underlying process responsible for pericarditis in this patient.

One can exclude such things as pericarditis secondary to coronary artery occlusion and to uremia, because these conditions do not lead to serious mechanical embarrassment to the heart. The infections which cause subacute or chronic pericarditis are first, those of known etiology, such as pyogenic infections following pneumonia and trauma, tuberculous infection, and tularemia; and secondly, a group of infections of unknown etiology including rheumatic fever, sarcoid and the arteritic group of diseases. The general clinical course, as well as the absence of leukocytosis, would seem to make pyogenic pericarditis unlikely. There is no evidence of tularemia or rheumatic fever, and we lack the bizarre symptoms with wide-spread visceral lesions which one usually associates with the various forms of arteritis. The one case of cardiac involvement secondary to sarcoid which I have seen was characterized by predominant myocardial rather than pericardial disease. Hence, of the various infections, tuberculosis would seem to be the most likely. It is the common cause of constrictive pericarditis, and the age of the patient by no means excludes it. I have seen several patients of this age with tuberculosis of the pericardium. The one feature which seems to me to be against tuberculosis is the lymph nodes in the neck, which were removed some months before. Scrofula is predominantly a disease of young people and I think it would be rather unusual to have a tuberculous lymphadenitis appearing first at this age.

Hence, we have to think of other causes, and particularly of neoplasms, since the patient had a lump in the neck which was removed. I see no reason to suspect carcinoma of the thyroid or any other type of carcinoma in this patient, but the picture is not unlike some cases of lymphoma, and more particularly of the Hodgkin's group of diseases. The fever, which was present for a time, then disappeared and recurred, fits into the picture of Hodgkin's disease better than into that of tuberculosis.

If it were not for the story of the lymph node in the neck I would diagnose this condition as tuberculous pericarditis, but under the circumstances I think that the evidence points more toward Hodgkin's disease. The lack of any enlargement of the mediastinal lymph nodes in the x-ray is against Hodgkin's disease, but does not exclude it. The disease might be in a relatively early stage in the lymph node and then spread down between the vessels to the undefended space above the heart, and in this manner involve the pericardium.

There is one peculiar feature in this patient and that is the absence of enlargement of the liver. All of the patients with constrictive pericarditis which I have seen have had an enlarged liver, and I am at a loss to account for the absence of this finding here. However, in view of the elevated venous pressure, the relative mildness of pulmonary as compared to systemic congestion, the paradoxical pulse and the rather typical electrocardiographic signs, I think we may safely conclude that we are dealing with constrictive pericarditis. For the reasons mentioned I think that Hodgkin's disease of the pericardium rather than tuberculosis is the most likely cause.

Dr. Harrison's Diagnosis

Constrictive pericarditis due to Hodgkin's disease.

Pathological Discussion

DR. WILLIAM DOCK (Visiting Professor of Medicine): The biopsy showed tuberculosis of the cervical node, so that the ward diagnosis was always tuberculous pericarditis, even though no organisms were demon-

strated and guinea pigs did not give a positive reaction to the fluid aspirated from the chest. However, at autopsy there was found generalized miliary tuberculosis, which would have been demonstrated in chest films had any been made after the first week. There was some tuberculosis of the caseous type in the remaining nodes near the scar in the neck, and also in some paratracheal nodes. The parietal and visceral layers of the pericardium were each about 1 cm. thick —tubercles, fibrosis and fibrinous exudate all combining to produce this effect. However, there was still 150 cc. of fluid in the pericardial sac and no extensive adhesions were present. There was fluid in each pleural cavity. The liver showed typical lobated structure and large fibrous scars of old gummas. In spite of the negative serology, this liver was greatly distorted and shrunken by syphilis. The miscarriage shortly after marriage may have been significant. The aorta showed no lesions.

The hepatic disease explains why, with pericardial disease causing tamponade and early stages of constriction, the liver did not become palpable. It is of interest that typical tuberculosis of childhood type occurred in this elderly and hypertensive woman. Dr. S. A. Levine of Boston pointed out to Dr. Harrison and me in our youth how rarely the hypertensive patient becomes tuberculous, and I think that fact may have helped to persuade Dr. Harrison that this was not tuberculosis.

Anatomical Diagnosis

Tuberculosis of the caseous nodular type in the cervical lymph nodes, with extension to the mediastinal nodes and pericardium.

Tuberculous pericarditis with effusion and beginning constriction.

Tuberculosis, disseminated, in the lungs, liver, spleen, adrenals, kidneys and lymph nodes.

Syphilis of the liver; hepar lobatum.

Calculi of the common and hepatic bile ducts; absent gallbladder (cholecystectomy).

Causes of death among children.— According to the Metropolitan Life Insurance Company, "The five chief causes of death among children of school age are, in order of numerical importance: accidents, appendicitis, influenza and pneumonia, rheumatic fever and tuberculosis. Accidents cause more than a fourth of all deaths of school children in America. These can be prevented and the killing of children by the four diseases can be greatly reduced by further efforts to protect child health.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Wills: The same mental capacity necessary to make a will is required to revoke one.

This is an account of a civil action instituted for the purpose of establishing fraud in connection with preventing the revocation of a will, the will having been made by a person who previous to the institution of the suit had died. Among other things, it was desired by the plantiffs to have the estate of the deceased above referred to distributed in the same manner as if he had died without making a will. The essential facts concerning this case are as follows:

In November, 1917, the testator made his will, in which he gave to his wife a life estate in his home place. After her death this property was to go to the children of the said spouse, who was his second wife. To his other heirs he gave certain farm lands know as the Swamp Land.

In October, 1936, he executed and delivered a note to a corporation in Wilson, North Carolina, and secured the payment of the note by the execution of a deed of trust on the farm known as the Swamp Land. This instrument was regularly recorded in the Register of Deeds Office of Lenoir County.

In November, 1938, the maker of the will was declared incompetent to handle his affairs because of his aged and infirm condition. One of the plaintiffs in this action was appointed general guardian for him, and continued as such until his death in May, 1941. A short time subsequent to the appointment of the guardian, a suit was instituted in the Superior Court of Lenoir County in an effort to avoid payment of the indebtedness represented by the note and deed of trust referred to above. The Swamp Land, which was to have gone to certain heirs of the deceased, was sold by order of court, the indebtedness paid, and the balance of the proceeds from the sale turned over to the guardian to be distributed, of course, in accordance with the law governing such matters.

The plaintiffs in the case alleged that shortly after the sale of the Swamp Land for the debt, the decedent called upon his wife to deliver to him the will so that it might be destroyed, in order to enable all his children to share equally in the estate, as provided by law in cases of intestacy. His wife, to prevent the destruction of the will, so that she and her children might inherit all the remaining real estate, assured him that the will was of no value by reason of the sale of lands under the decree of the court, and that the instrument had been destroyed.

The defendants in this case filed a demurrer to the complaint, alleging that the complaint did not state facts sufficient to constitute a cause of action, and that the facts alleged were insufficient to entitle the plaintiffs to the relief demanded.

From the judgment overruling the demurrer, the defendants appealed and assigned error.

When this case came on for consideration before the Supreme Court, the question arose as to whether or not a person declared incompetent to handle his affairs because of his aged and infirm condition, and for whom a guardian has been appointed, has the mental capacity to revoke a will. In this connection, the court held that one who has been adjudged incompetent from want of understanding to manage his affairs by reason of physical and mental weakness, on account of age, disease, or like infirmities, and for whom the court has appointed a guardian,

and not a trustee, is conclusively presumed to lack mental capacity to manage his affairs in so far as parties and privies to the guardianship are concerned. While not conclusive as to others it is presumptive proof of the mental incapacity of the ward, and this presumption continues unless rebutted in a proper proceedings.

It was, therefore, the opinion of the Court in this case that in the absence of proof to the contrary, a person for whom a guardian has been legally appointed is presumed to lack the mental capacity to make or revoke a will. It is the general rule that the same mental capacity necessary to make a will is required to revoke one. Therefore, the demurrer should have been sustained by the Superior Court, and the judgment was reversed. (North Carolina Supreme Court, Vol. 222, page 274. Decision rendered Fall Term, 1942.)

BULLETIN BOARD

SECRETARY'S MESSAGE

The following letter, sent to all delinquent members of the State Medical Society, has brought in more than $300 in dues:

May 25, 1943

Dear Doctor:

In looking over the records of my office, I find that your dues for 1943 have not been paid. This brings to mind the story of an old Negro who was sentenced to the gallows. He endeavored to write an explanation of his predicament to the Governor and win a pardon. The Governor received the following letter:

Dere Marse Guvner

Dey is fixin' to hang me friday and here it am tusday.

specfully
Amos Brown

Now your predicament is not by any means as serious as that of Amos Brown but we are about to make up the Roster of Fellows for 1943 which must be in the hands of the printers by July 1st. We are, therefore, "fixin' to kill" your name on the Roster and on the maling list for the NORTH CAROLINA MEDICAL JOURNAL because your current dues have not been paid. May I suggest that you win a pardon from this "killin'" by remitting your dues—$8.00—through your County Society Secretary, IF YOU ARE IN AN ORGANIZED COUNTY, or direct, IF YOU ARE NOT. One of those printed forms in your check book is ideal for taking care of this pardon.

'spectfully,

ROSCOE D. MCMILLAN, M.D.

NEWS NOTES FROM THE STATE BOARD OF HEALTH

During the first four months of 1943 there was an increase of more than 50 per cent in diphtheria deaths over the corresponding period of 1942. This, in spite of the fact that there is a compulsory immunization law on our statute books.

In spite of diphtheria and other infantile ailments, there were only 1,560 deaths among babies under a year old during the first four months of 1943, as compared with 1,678 for the corresponding period of the previous year, a difference of 118 in favor of the present year. Maternal deaths, however, were practically the same—108 this year, 107 last.

Tuberculosis deaths continued to decline, with 491 during the first third of 1943, as compared with 553 last year.

One of the most outstanding features of vital statistics reports during the past two years has been the sustained upward trend in the number of births reported. So far this year—that is, through April—there have been 30,969 births reported to the State Board of Health. During the corresponding months last year, there were 28,108, giving 1943, so far, an increase of 2,861. The fact that infant mortality, for the time being, at least, is on the decline, is very gratifying to physicians and health workers and should be to the general public. All too often, a rise in birth rate is accompanied by a corresponding rise in infant mortality. But we have little cause to boast, in spite of our gains, as North Carolina still has one of the highest infant mortality rates in the entire Union. That is why our task is so great.

During the period under consideration there were 10,294 deaths from all causes and among persons of all ages in North Carolina. This number not only was 58 fewer than occurred during the corresponding period of 1942 but was 20,675 under the total number of births.

* * * *

There were only seven cases of smallpox in the State in 1942 and no two occurred in any one county, while there has been only one death from smallpox in North Carolina in twelve years and that occurred in 1937, with none in the past six years.

The question naturally arises: Why discuss smallpox when the disease is almost extinct and when the death rate from it now is practically nil? Eternal vigilance is the price of liberty—and also the price of freedom from disease.

If 60,000,000 Europeans died of smallpox during the 18th century, before the development of any of the modern means of transportation can you, by any stretch of the imagination, conceive what would be the death-toll today with the most widely separated continents only a few hours apart—if we should stop the practice of vaccination? Smallpox is one of the most contagious diseases known. It spreads rapidly—the period of incubation is short and the development of the disease quick.

There is no guarantee that immunity is built up past the individual who submits to vaccination. It is, therefore, necessary that each person be vaccinated for himself. Any indifference toward this necessary precaution might easily lead to smallpox epidemics, even in this day of cleanliness and enlightenment.

News Notes From the North Carolina Tuberculosis Association

Eighteen workers from North Carolina and twenty-three students from the School of Public Health at the University of North Carolina attended our first North Carolina Institute for Tuberculosis Workers which was held in Raleigh May 31-June 5. Members of this intensive training school received information and inspiration from nationally known authorities on the various aspects of the campaign against tuberculosis.

* * * *

Approximately thirty thousand chest x-rays have been recently made of industrial workers in our state. This mass examination has been made possible by the United States Public Health Service under the Tuberculosis Control Division cooperating with the State Board of Health. North Carolina has been fortunate in obtaining the first of these group x-raying units. The larger war industries are being examined first in order to reach the largest number of employees in the shortest length of time.

However, it is hoped that the smaller industries will seek the same service and that it will soon be practicable to make this service available to all workers. About 2 per cent of those examined show evidence of the adult type of tuberculosis, and approximately one-half of these appear to have active disease or to be sufficiently indicative of infection to warrant further study.

* * * *

We are proud to announce that one of the five fellowships in health education offered by NTA's Committee on Negro Program has been granted to a North Carolinian—Mrs. Gertrude Taylor, Elementary Supervisor in the Durham County Schools. This fellowship, the cost of which is borne by the national, state and local associations interested, will enable Mrs. Taylor to attend the summer session of the School of Public Health at the University of Michigan.

* * * *

The latest report of the tuberculosis committee of the American Student Health Association (academic year 1941-1942) shows that only seven of twenty-two North Carolina colleges had an anti-tuberculosis program. Although ten of the colleges reported, which shows awakening interest, this leaves fifteen state colleges without a program. It has been suggested that in territories where there are colleges the local associations check up and take on this work as a demonstration project in order that we can have a one hundred per cent report next time.

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County tuberculosis associations were organized in Greene and Johnston counties during the month of May. Mrs. Mark C. Lassiter was elected president and Miss Nina Mewborn executive secretary in Greene County, and in Johnston County Mrs. D. J. Thurston was named as president and Mrs. Elizabeth Cooper as executive secretary.

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In view of difficulties of travel, hotel accommodations and to cooperate with the O.D.T., the scheduled meeting of the Southern Tuberculosis Conference has been called off for this year. By mail ballot all officers were continued until the time of next meeting.

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Mrs. Ralph Andrews has been added to the staff of the North Carolina Tuberculosis Association in the capacity of field worker and Miss Sara James as stenographer. This now gives the state association two field workers, Mrs. May C. Nichols and Mrs. Ralph J. Andrews. Mrs. Ina D. MacMillan, who has been secretary, will be the office manager and Miss James will be the office secretary. These additions will increase the amount of field service as well as the service from the State Office.

* * * *

War and post war programs in tuberculosis control were the topics discussed at the board meeting of the National Tuberculosis Association in St. Louis on May 5-6. Dr. Lewis J. Moorman, Oklahoma City, assumed the office of president of the association and Dr. Fred H. Heise, Saranac Lake, N. Y., was named president-elect. Other officers elected were: Dr. Charles J. Hatfield, Philadelphia, secretary; Livingston Platt, New York, treasurer. Mrs. Ashley Halsey, Charleston, S. C., was elected president of the National Conference of Tuberculosis Secretaries. Other officers are: W. P. Shahan, Illinois, vice-president; T. J. Werle, Michigan, treasurer, and Mrs. Henry W. Taylor, Pennsylvania, secretary. Your executive secretary was chosen as a member of the advisory committees on Rehabilitation and Publicity. Dr. John B. Barnwell, Michigan, assumed the office of president of the American Trudeau Society and Dr. Julius E. Wilson, New Orleans, was made president-elect.

The Trudeau Medal for 1943 by unanimous decision was awarded to Dr. David Russell Lyman of Wallingford, Conn. This award is the highest recognition for outstanding achievement in the tuberculosis movement awarded annually by a committee of the NTA.

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting at the Robert E. Lee Hotel in Winston-Salem on June 8. Dr. H. C. Lennon of Greensboro was the guest speaker. His subject was "Ovarian Tumors." Dr. C. N. Adams of Winston-Salem presented a case report of "Hour-Glass Contractions of the Uterus."

Southern Medical Association Meeting

The Southern Medical Association will hold its annual meeting in Cincinnati, Ohio, November 16, 17 and 18.

Association of Military Surgeons

The Association of Military Surgeons of the United States will hold its 51st annual convention in Philadelphia at the Bellevue-Stratford Hotel October 21-23, inclusive, according to an announcement by association officers.

The American Foundation for Tropical Medicine, Inc.

The medical advisory committee of The American Foundation for Tropical Medicine, Inc., authorized grants to six North American medical schools totalling $26,100 during the first quarter of 1943, according to a report by Dr. J. A. Curran, executive director, at a meeting of directors of the Foundation in New York City on April 14.

These grants, made possible by contributions and pledges for the current year of $60,100 by nineteen American corporations, are being used to strengthen teaching or research programs in tropical medicine and parasitology at the various schools. The approved projects were selected by the medical committee among a number of applications.

The National Foundation for Infantile Paralysis

Twenty-eight grants, totaling $354,370, have been made by The National Foundation for Infantile Paralysis to universities, hospitals, laboratories and other organizations in eleven states to continue the fight against the disease, it was announced recently by Basil O'Connor, president of the Foundation.

Quarterly Review of Obstetrics and Gynecology

A new journal, the **Quarterly Review of Obstetrics and Gynecology**, began publication in April. The objective of this review is to bring together in one publication the essence of all that is published in obstetrics and gynecology from the world's literature. More than 300 medical and surgical periodicals and special publications are reviewed for this journal.

The address of the **Quarterly Review of Obstetrics and Gynecology** is 314 Randolph Place, N. E., Washington, D. C.

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Treasurer.....Mrs. E. C. Judd, Raleigh

Twenty-First Annual Convention

The twenty-first annual convention of the Auxiliary to the Medical Society of the State of North Carolina convened in Raleigh May 11, 1943. Despite war and its attendant difficulties, the Auxiliary had forged ahead in every phase of its work—as was shown by the reports given by the officers, committee chairmen and councilors at the Board meeting held on Tuesday morning.

Immediately after this meeting the general session of the Auxiliary was held at a luncheon meeting at the Carolina Hotel with the president, Mrs. R. A. Moore, presiding. The banquet hall and tables were lovely in the colorful arrangement of garden flowers. The program was most interesting and helpful. The report of the National Defense chairman showed that great time and effort has been given in every phase of war work. A detailed report of all transactions will be published in a later issue of this magazine. The attendance, which was much larger than was anticipated, proves that our doctors' wives are interested in the problems and work of their husbands.

Following the luncheon a short meeting of the Executive Board was held by the incoming president, Mrs. K. B. Pace, who introduced her "Official Family" and made plans for the work of the new year.

On Tuesday evening at 7 o'clock the members of the Auxiliary met with the Medical Society at a banquet held at the Sir Walter Hotel. Dr. Paul Ringer was delightful as toastmaster and a humorous speech was given by Dr. Spence of Durham. This was followed by a very entertaining performance of Wallace, the Magician.

After this the President's Ball was held, bringing to a close a day full of delightful fellowship, renewing old acquaintances, meeting new friends, and best of all having the satisfied feeling that comes from promoting worthwhile projects.

The Auxiliary is grateful to Mrs. Verne Caviness of Raleigh, general convention chairman, and to her various committees who planned and executed such a splendid meeting.

Mrs. G. G. Dixon,
Press and Publicity Chairman

Pulmonary tuberculosis rarely develops in an individual after thirty-five if at that age the roentgenogram shows no evidence of the disease. In spite of this we should keep in mind the fact that the mortality rate from tuberculosis is highest in the older age groups. The highest rate from men is after age fifty; for women the rate is almost as high in the sixties as it is in the twenties, and highest of all in the seventies. Therefore, we should give more attention to the later years of the life line and not feel so self-satisfied when we roll up impressive clinic figures which, if analyzed, would show that the total was to a great extent made up of children. The oldsters will yield a greater percentage of tuberculosis for number examined than will the youngsters. These individuals are shy, however, and it requires more will and persistence to lure them into the clinic's net. From "The Modern Attack on Tuberculosis" by Chadwick and Pope, published by the Commonwealth Fund, New York.

In Memoriam

DR. JULIUS NAPOLEON HILL, SR.

Dr. J. N. Hill was born in Cherokee County, May 27, 1885, and died on April 27, 1943, in the Veterans' Hospital at Atlanta, Georgia, as the result of chronic myocarditis and arterial hypertension.

He graduated from the University of Louisville Medical College, Louisville, Kentucky, in 1909, and practiced medicine in Oklahoma City, Oklahoma, for a period of two years. In 1911, Dr. Hill located in his home town, Murphy, North Carolina, where he engaged in the general practice of medicine from 1911 until 1941, when he retired on account of ill health.

He served as a Medical Officer in the United States Army in World War I.

Dr. Hill was one of the organizers of the Cherokee County Medical Society and served as its president for a number of terms. He was a member of the American Medical Association and the Medical Society of the State of North Carolina. He was also a member of the Masonic Order and the Shrine.

Dr. Hill served as County Physician for Cherokee County for many years, and was a member of the Board of Trustees of the Murphy City Schools; he was also a member of the Board of Trustees of the Western North Carolina Teachers' College.

In the death of Dr. Hill, Cherokee County has lost a valuable physician, a courteous gentleman, and a kind, sympathetic man. He served the community in which he lived long, faithfully and well, and will be greatly missed as a physician throughout the territory in which he practiced.

M. P. Whichard, M.D.

BOOK REVIEWS

Diseases of the Nose, Throat and Ear: Medical and Surgical. By William Lincoln Ballenger, M.D., F.A.C.S., Late Professor and Head of the Department of Otology, Rhinology and Laryngology, University of Illinois College of Medicine; and Howard Charles Ballenger, M.D., F.A.C.S., Associate Professor of Otolaryngology, Northwestern University Medical School. Eighth edition, thoroughly revised. Price $12. 975 pages with 604 engravings and 27 plates. Philadelphia: Lea & Febiger, 1943.

In the eighth edition of this excellent textbook there has been some rearrangement, partial rewriting, and amplification of portions of the text. The numerous, excellent illustrations add to its completeness.

The book is divided into five parts: The Nose and Accessory Sinuses; The Pharynx and Fauces; Diseases of the Larynx; The Ear; and Bronchoscopy.

The chapter on paralysis and neuroses of the larynx has been revised and partly rewritten by Dr. John J. Ballenger. Drs. Brian T. King and J. H. Kelly describe their operations for bilateral paralysis of the recurrent laryngeal nerves. The chapters on Peroral Endoscopy have been revised by Drs. Gabriel Tucker and C. L. Jackson. Dr. Alfred Lewy has revised the chapters on physiology, functional tests, and inflammatory diseases of the labyrinth.

This textbook is recommended to all otolaryngologists, residents and graduate students in otolaryngology, and as a reference work for medical students and general practitioners.

The Physiological Basis of Medical Practice. By Charles Herbert Best, M.A., M.D., D.Sc. (London), F.R.S., F.R.C.P. (Canada), Professor and Head of Department of Physiology, Associate Director of the Connaught Laboratories, Research Associate in the Banting-Best Department of Medical Research, University of Toronto; and Norman Burke Taylor, M.D., F.R.S. (Canada), M.R.C.S. (Eng.), L.R.C.P. (London), Professor of Psysiology, University of Toronto. Third edition. 1942 pages. Price, $10.00. Baltimore: The Williams and Wilkins Company, 1943.

The fact that the publishers now present the third edition of this book within six years of the first one is evidence of its enthusiastic reception by the medical profession. It has been popular because it filled a long felt want—the correlation of physiology with clinical medicine. Its large size precludes a detailed analysis of it; but it suffices to say that this edition fully lives up to the promise of the first two. It is so well organized and so thoroughly indexed that its great mass of information is easily available. It is one of those books that the general practitioner or internist should have within easy reach of his desk.

The March of Medicine. Number VII of the New York Academy of Medicine Lectures to the Laity. 217 pages. Price, $2.50. New York: Columbia University Press, 1943.

A few years ago the New York Academy of Medicine, in a commendable effort to foster better relations between the medical profession and the public, undertook the annual presentation of a series of lectures couched in non-technical language, and dealing with various phases of medical achievement. The seventh of the series of "Lectures to the Laity" is remarkable for the uniform excellence of the six lectures presented. They are as follows: "Tuberculosis: The Known and the Unknown" by James Alexander Miller, M.D.; "The Brain and the Mind" by T. J. Putnam, M.D.; "The Freudian Epoch" by A. A. Brill, M.D.; "Genius, Giftedness, and Growth" by Arnold Gesell, M.D.; "The History of the B-Vitamins" by Norman Jolliffe, M.D.; and "The Newer Knowledge of Nutrition" by A. J Carlson, M.D.

Brucellosis in Man and Animals. By I. F. Huddleson, M.D. Second edition. 379 pages. Price, $3.50. New York: The Commonwealth Fund, 1943.

The reviewer has nothing except praise for this storehouse of information relative to a very common and widespread disease (or diseases). This and other reports indicate that the incidence of brucellosis is far greater than is generally believed by the profession.

In this volume all phases of the problem are discussed in a clear and authoritative manner. The naturally occurring and experimentally produced diseases are described, and the three types of the infection are clearly differentiated. Chapters on diagnosis, treatment, and control measures make the book equally useful to the diagnostic laboratory technician, the clinician, and the public health official. This second edition, written in the same clear style as the first, brings up to date all the information of value concerning brucellosis. Dr. Huddleson is to be commended for giving us this enlightening presentation, and the book is recommended for study by all those interested in disease.

The Inner Ear: Including Otoneurology, Otosurgery, and Problems in Modern Warfare. By Joseph Fischer, M.D., Staff Member, Beth Israel Hospital, Boston; formerly Associate of Adam Politzer and Senior Otolaryngologist with Gustav Alexander, Policlinic of Vienna; and Louis E. Wolfson, M.D., Instructor in Ear, Nose, and Throat, Tufts Medical School; Senior Surgeon in Ear, Nose, and Throat, Boston Dispensary. Price, $5.75. 430 pages, with 79 illustrations, 4 in color. New York: Grune and Stratton, Inc., 1943.

The authors of this excellent and timely text have given to the otologist a masterpiece on the inner ear. Numerous diagrams, photographs and photomicrographs enhance its value.

The book is divided into fifteen chapters: Clinical Anatomy; General Physiology; Applied Physiology; Functional Tests; Primary Diseases of the Labyrinthine Capsule; Otosclerosis; Inflammatory Diseases of the Inner Ear; Intracranial Labyrinthogenic Complications; Chemotherapy; Facial Palsy; Congenital Diseases; Neoplasms; Vascular Lesions; Meniere's Syndrome; War Trauma; The Role of the Inner Ear in Aeronautics; and Effects of Atmospheric Pressure Changes on the Ear.

The chapters on problems in modern warfare deal with skull fractures, concussion of the inner ear, trauma due to explosions, gunshot injuries, and the inner ear in aeronautics. Dr. Wolfson studied the above problems in England for six months during the "blitz".

The entire text is well written and the references following each chapter are extensive and up to date.

This book is recommended to all otolaryngologists, residents and graduate students in otolaryngology, neurologists, and those treating wartime head injuries.

Familial Nonreaginic Food Allergy. By Arthur F. Coca, M.D., Medical Director, Lederle Laboratories. 160 pages, with 20 tables and 12 charts. Price, $3.00. Springfield, Illinois: Charles C. Thomas, 1943.

This book is stimulating and presents a relatively unexplored field of allergy in which the patient's sensitivity to foods can be determined only by acceleration of the pulse rate following the ingestion of an allergenic food. Atopic reagins are absent; and yet, according to the author, urticaria, allergic headache, gastrointestinal food allergy, certain cases of "idiopathic" epilepsy, neuralgia, canker sores, constipation, chronic rhinitis, and several other conditions may all be caused by this type of allergy. His reported cures of everything from anorexia to epileptiform seizures by determining the allergenic foods and eliminating these from the diet, are so dramatic that this observer doubts his results, yet at the same time is convinced that his methods must be given an adequate trial in similar cases. For as the publishers and other competent observers state, if familial nonreaginic food allergy can be shown by others to be as specific a clinical entity as the author believes it to be, the practice of medicine may be considerably affected by his findings.

Methods of diagnosis and treatment are clearly presented, and certainly deserve a careful trial by conscientious physicians.

A Manual of Cardiology. By Thomas J. Dry, M.A., M.B., Ch.B., M.S. in Medicine, Assistant Professor of Medicine, University of Minnesota (Mayo Foundation); Consultant in Section on Cardiology, Mayo Clinic. 310 pages with 80 illustrations. Price, $3.00. Philadelphia and London: W. B. Saunders Company, 1943.

In this short manual Dr. Dry has epitomized the subject of the heart and its diseases in a remarkably concise and simple manner. The subject matter covered compares favorably with that found in the more extensive texts on cardiology. It is obviously impossible for the author to enter into the specific detail given in larger available volumes, but the manual should prove adequate for the use of the student and general practitioner who desire a brief, yet authoritative, survey of the subject.

Chemotherapy of Gonococcic Infections. By Russell D. Herrold, B.S., M.D., Associate Professor of Surgery (Urology), College of Medicine, University of Illinois. 137 pages. St. Louis: The C. V. Mosby Company, 1943.

This is a monograph for which the practitioner has been waiting. Dr. Herrold, a man of twenty years' experience in both clinical and laboratory work in gonococcal infections before the advent of sulfonamide therapy, should be well qualified to evaluate the voluminous work of various investigators and to draw valuable conclusions from his own vast experience in this subject.

Without extensive discussion of the histology, bacteriology, pathogenesis, and pathology of gonococcic infection, he goes straight to the point of the management of the various manifestations of gonorrhea, takes up the problems of failure with chemotherapy, and logically analyzes them from the standpoint of diagnosis and treatment. The differential diagnosis of gonococcic infection is particularly stressed. Attention is constantly directed toward para-urethral foci and nonspecific conditions simulating gonorrheal urethritis which are intractable to sulfonamide therapy and must be handled by other methods of attack.

The relative merits and the proper administration of the different drugs are thoroughly discussed. The chapter on toxic reactions from sulfathiazole is alone of enough worth to warrant the publication of the book. It deals with the proper appraisal of the patient at frequent intervals during treatment, describes the prodromal symptoms of serious reactions, and gives in full detail the methods of handling toxic manifestations which may appear.

The author is convinced that local treatment in connection with chemotherapy is of value, but he allows no self treatment. The technique of local treatment is fully described.

The importance of obtaining a complete cure before dismissing the patient is stressed. Clinical and laboratory methods of determining whether the infection has been eradicated are described.

The author is at his best in his chapter on clinical and laboratory investigation of such problems as prophylaxis, culture of the gonococcus, and the unsolved clinical problems due to the variations in the strains of the organism and their refractiveness to the sulfonamide drugs. He includes sixty illustrative case histories which well cover the kind of clinical problems met by the practitioner and, in almost too simple a manner, solves them.

This work of Dr. Herrold is, in the opinion of this reviewer, of great practical value to the practitioner and the public health physician, as well as to the urologist who does venereal practice.

Squibb Adds Progesterone in Oil to Hormone Line

For the treatment of certain cases of habitual or threatened abortion, dysmenorrhea and functional bleeding, E. R. Squibb & Sons, New York, have added Progesterone in Oil to their extensive line of hormone products. This is a sterile preparation of pure crystalline progesterone in corn oil for intramuscular administration, standardized in terms of International units. One I. U. is the progestational activity of 1 mg. of the crystalline standard.

Progesterone in Oil Squibb is supplied in ampuls containing sufficient material for the withdrawal and administration of 1 cc.

More Help For Milk-Allergic Patients

Appetizing and nutritious recipes for using Mull-Soy in milk-free diets are now available in a new publication of Borden's Prescription Products Division. Already widely prescribed as a hypoallergenic substitute for milk in infant formulas, Mull-Soy is now proving equally useful in diets of older infants, children and adults who are allergic to milk.

Mull-Soy is an ethically-marketed soybean food in liquid emulsified form. It is palatable, readily digestible, well-tolerated, and easy to use. Although hypoallergenic in most cases of milk allergy, it nevertheless closely resembles milk in nutritional values of protein, fat, carbohydrate, and minerals. Mull-Soy ingredients are entirely of non-animal origin, consisting of soybean flour, soybean oil, soybean lecithin, dextrose, sucrose, calcium phosphate, calcium carbonate, salt, and water. After special processing at carefully controlled temperatures, the mixture is homogenized at high pressure, sealed in sanitary-type cans, and sterilized. In flavor it is slightly sweet and nutlike, and many find it makes a pleasing warm drink when simply diluted with an equal amount of hot water.

Included in the new Mull-Soy recipe folder are numerous beverages, soups, and desserts, as well as directions for using Mull-Soy in place of milk or cream for cereals, coffee, mashed potatoes, etc. Each recipe has been carefully tested in the Borden Experimental Kitchen and checked for palatability, ease of preparation, and suitability for milk-free allergy diets. A number of the recipes have several suggested variations and optional ingredients which permit greater variety in the diet and also make the recipes more useful for patients allergic to other foods in addition to milk.

These Mull-Soy recipe folders are designed for distribution by physicians to their patients. Any desired number of copies may be obtained by writing to Borden's Prescription Products Division, Department CB, 350 Madison Avenue, New York 17, N. Y.

Tetanus Immunization of Military Personnel

All military personnel on induction are being immunized against tetanus either, as in the Army, by three injections of fluid toxoid, or as in the Navy and Marine Corps, by two injections of alum precipitated toxoid (New Eng. J. Med., 227:162, 1942). In addition a small or stimulating dose is injected prior to departure for a theater of operations and an emergency dose is given to those wounded or burned in battle or incurring other wounds likely to be contaminated with **Clostridium tetani.** According to recent report (Am. J. Pub. Health, 33:53, 1943) since June, 1941, when the present tetanus immunization program was adopted, there have been but four cases reported from the entire Army, and none of these were in immunized individuals. Although perhaps too early in the present war to draw any conclusions, it is of particular interest that no cases of tetanus have been reported from battle casualties.

For civilian use, especially in children, it is of decided advantage to accomplish simultaneous immunization against tetanus and diphtheria. Combined Diphtheria Toxoid-Tetanus Toxid, Alum Precipitated, Lilly, is designed for prophylaxis only, affords effective immunity against both diseases, and avoids risk of serum sensitization which may follow use of an antitoxin.

Any Physician May Exhibit "When Bobby Goes To School" To The Public

Under the rules laid down by the American Academy of Pediatrics, their educational-to-the public film, "When Bobby Goes to School," may be exhibited to the public by any licensed physician in the United States.

All that is required is that he obtain the endorsement by any officer of his county medical society. Endorsement blanks for this purpose may be obtained on application to the distributor, Mead Johnson & Company, Evansville, Indiana.

Such endorsement, however, is not required for showings by licensed physicians to medical groups for the purpose of familiarizing themselves with the message of the film in advance of public showings in the community.

"When Bobby Goes to School" is a 16-mm. sound film, free from advertising, dealing with the health appraisal of the school child, and may be borrowed without charge or obligation on application to the distributor, Mead Johnson & Company, Evansville, Indiana.

.....Patronize Our Advertisers

...and say that you saw it in the

North Carolina Medical Journal

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

NINETIETH ANNUAL SESSION

...held at...

RALEIGH, NORTH CAROLINA

MAY 10, 11 and 12, 1943

President, Donnell B. Cobb, M. D., Goldsboro

Secretary-Treasurer, Roscoe D. McMillan, M. D., Red Springs

EARLY HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1804

Date	Place	President	Vice Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799 or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sitgreaves
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1943

*Missing Data Not to be Found in Record

	Date	Place of Meeting	Number in Attendance	President	Vice Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary
	1849	Raleigh	25	E. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	0	
3	1852	Wilmington	38	J. L. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. Mebane	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, J. R. Gibson, Johnston B. Jones, O. F. Manson	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Fuson, E. T. Gibson	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Noreom	W. G. Thomas	C. W. Graham	244	18	
13	1862	Raleigh	20	J. J. Summerell	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones	W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas		S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	46	F. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. J. Murphy, M. A. Locke	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. I. Payne	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Noreom	James McKee	J. W. Jones			
20	1873	Statesville	43	M. Whitehead	W. T. Bennett, William Little, Charles Duffy, P. T. Jerman	James McKee	H. T. Bahnson			
21	1874	Charlotte	56	W. A. B. Noreom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight	James McKee	H. T. Bahnson			
22	1875	Wilson	60	J. W. Jones	Walker Debnam, J. A. Gibson, William Little, D. N. Patterson	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	76	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stitt	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, I. M. Hadley, E. S. Foster, John Whitehead	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McRee, T. F. Anderson, W. H. Whitehead, A. G. Carr	W. C. Murphy	R. L. Payne, Jr.	424	6	

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1943—Continued
*Missing Data Not to be Found in Record

Date	Place of Meeting	Number in Attendance	President	Vice Presidents	Secretary	Treasurer	Members on Roll	Honorary Members	Honorary Fellows*
1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison	J. M. Baker	R. L. Payne, Jr.	438	7	.....
1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson	J. M. Baker	R. L. Payne, Jr.	452	7	.....
1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Van Poole	306	6	.....
1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Van Poole	410	6	.....
1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth	J. M. Hays	C. M. Van Poole	414	6	.....
1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Van Poole	422	6	.....
1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard	J. M. Hays	C. M. Van Poole	431	6	.....
1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill	R. D. Jewett	M. P. Perry	447	5	3
1894	Greensboro	166	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher	R. D. Jewett	M. P. Perry	454	5	3
1895	Goldsboro	.....	J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer	R. D. Jewett	M. P. Perry	436	7	3
1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley	R. D. Jewett	M. P. Perry	452	7	3
1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long	R. D. Jewett	M. P. Perry	406	6	3
1898	Charlotte	*...	Francis Duffy	E. C. Register, A. T. Cotton, J. H. B. Knight, F. H. Russell	R. D. Jewett	M. P. Perry	437	6	21
1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson	Geo. W. Presley	G. T. Sikes	489	6	16
1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott, T. B. Williams, W. D. Hilliard	Geo. W. Presley	G. T. Sikes	482	6	21
1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell	Geo. W. Presley	G. T. Sikes	515	5	18
1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott	Geo. W. Presley	G. T. Sikes	546	5	20
1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson	J. Howell Way	G. T. Sikes	530	6	19
1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl	J. Howell Way	G. T. Sikes	1,033	8	17
1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1,175	8	17
1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer	J. Howell Way	G. T. Sikes	1,234	8	16
1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove	David A. Stanton	H. McK. Tucker	888	7	16
1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon	David A. Stanton	H. McK. Tucker	998	7	28
1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McK. Tucker	1,067	7	25
1910	Wrightsville Beach	276	J. A. Burroughs† E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton	David A. Stanon	H. D. Walker	1,080	8	35
1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn	David A. Stanton	H. D. Walker	880	8	45
1912	Hendersonville	296	A. A. Kent	J. P. Monroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse	John A. Ferrell	H. D. Walker	1,133	8	40
1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier	John A. Ferrell	H. D. Walker	1,228	8	47
1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell	John A. Ferrell	H. D. Walker	1,221	9	68
1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison	Benj. K. Hays	W. M. Jones	1,228	10	79
1917	Asheville	280	Charles O'H. Laughinghouse	D. J. Hill, J. L. Spruill, J. H. Shuford	Benj. K. Hays	W. M. Jones	1,271	11	81
1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal	Benj. K. Hays	W. M. Jones	1,087	11	81
1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair	Sec.-Treas. Benj. K. Hays	Acting Sec.-Treas. L. B. McBrayer	1,306	11	100
1920	Charlotte	479	C. V. Reynolds	H. D. Walker, F. Stanley Whitaker, Thos. I. Fox	Benj. K. Hays	L. B. McBrayer	1,497	12	100
1921	Pinehurst	404	T. E. Anderson	C. S. Lawrence, W. H. Ward, J. M. Manning	Benj. K. Hays	L. B. McBrayer	1,491	12	93
1922	Winston-Salem	507	H. A. Royster	W. T. Parrott, B. C. Nalle, J. R. McCracken		Sec.-Treas. L. B. McBrayer	1,571	12	100
1923	Asheville	356	J. W. Long	F. M. Hanes, T. C. Johnson, B. L. Long		L. B. McBrayer	1,592	9	101
1924	Raleigh	525	J. V. McGougan	J. L. Spruill,‡ Eugene B. Glenn, D. A. Garrison		L. B. McBrayer	1,604	9	106
1925	Pinehurst	550	Albert Anderson	W. L. Dunn, A. E. Bell, K. G. Averitt		L. B. McBrayer	1,657	10	116
1926	Wrightsville Beach	445	Wm. deB. MacNider	J. P. Matheson, W. W. Dawson, H. H. Bass		L. B. McBrayer	1,663	10	107
1927	Durham	653	John Q. Myers	J. W. Carroll, A. Y. Linville, C. H. Cocke		L. B. McBrayer	1,691	10	121
1928	Pinehurst	611	John T. Burrus	G. H. Macon, R. F. Leinbach, W. R. Griffin		L. B. McBrayer	1,738	11	143
1929	Greensboro	671	Thurman D. Kitchin	W. L. Dunn,† Asheville, D. T. Tayloe, Jr., Washington, W. D. James, Hamlet		L. B. McBrayer	1,666	11	146
1930	Pinehurst	701	L. A. Crowell	W. B. Murphy, Wm. E. Warren, N. B. Adams		L. B. McBrayer	1,711	11	155

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1943—Continued

	Date	Place of Meeting	Number in Attendance	President	President-Elect	Vice Presidents	Sec.-Treas.	Members on Roll	Honorary Members	Honorary Fellows
78	1931	Durham	714	J. G. Murphy	M. L. Stevens	C. A. Julian, Greensboro J. W. Davis, Statesville	L. B. McBrayer	1,600	10	164
79	1932	Winston-Salem	740	M. L. Stevens	Jno. B. Wright	C. W. Banner, Greensboro W. W. Sawyer, Elizabeth City	L. B. McBrayer	1,559	10	166
80	1933	Raleigh	714	Jno. B. Wright	I. H. Manning	J. R. McCracken, Waynesville	L. B. McBrayer	1,363	10	181
81	1934	Pinehurst	728	I. H. Manning	P. P. McCain	W. G. Suiter, Weldon R. L. Felts, Durham	L. B. McBrayer	1,563	10	210
82	1935	Pinehurst	706	P. P. McCain	Paul H. Ringer	H. D. Walker, Elizabeth City J. F. McKay, Buie's Creek	L. B. McBrayer	1,619	10	215
83	1936	Asheville	583	Paul H. Ringer	C. F. Strosnider	William Allan, Charlotte J. K. Pepper, Winston-Salem	L. B. McBrayer	1,462	10	235
84	1937	Winston-Salem	767	C. F. Strosnider	Wingate M. Johnson	E. S. Bullock, Wilmington C. A. Woodward, Wilson	L. B. McBrayer	1,503	7	253
85	1938	Pinehurst	802	Wingate M. Johnson	J. Buren Sidbury	Jno. F. Brownsberger, Fletcher R. B. McKnight, Charlotte	L. B. McBrayer	1,715	7	284
86	1939	Cruise to Bermuda	319	J. Buren Sidbury	William Allan	J. F. Abel, Waynesville C. B. Williams, Elizabeth City	T. W. M. Long	1,605	8	313
87	1940	Pinehurst	835	William Allan	Hubert B. Haywood	M. D. Hill, Raleigh F. Webb Griffith, Asheville	T. W. M. Long	1,661	7	311
88	1941	Pinehurst	755	Hubert B. Haywood	F. Webb Griffith	Frank C. Smith, Charlotte D. W. Holt, Greensboro	T. W. M. Long (1)	1,700	7	309
89	1942	Charlotte	710	F. Webb Griffith	Donnell B. Cobb	T. C. Kerns, Durham Thos. DeL. Sparrow, Charlotte	I. H. Manning	1,837	8	350
90	1943	Raleigh	736	Donnell B. Cobb	James W. Vernon	T. L. Carter, Gatesville George S. Coleman, Raleigh Julian Moore, Asheville	Roscoe D. McMillan Roscoe D. McMillan	1,837 1,919	8 8	350 361

†Died during his term of office; succeeded by E. J. Wood, first vice president. ‡Died during term of office. (1) Died during term of office; succeeded by I. H. Manning.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1929-1943

COUNTY	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
Alamance-Caswell	32	33	33	32	29	32	30	31	30	27	34	35	35	42	41
Alexander *a*															
Alleghany *b*															
Anson	8	6	6	4	4	9	7	8	7	6	11	10	10	9	10
Ashe *c*	5	5	5	4											
Avery *d*	6	5	5	5		5	5	5	5	6	4	5	5	6	7
Beaufort	16	15	15	15	12	13	15	10	9	11	12	13	13	14	[illegible]
Bertie	6	7	9	7	8	9	11	9	8	8	7	7	7	8	7
Bladen	8	8	8	8	5	6	8	6		7	7	7	7	7	7
Brunswick	6	3	2	2	2	3	2								
Buncombe	118	113	112	105	83	107	115	106	98	103	111	108	90	97	115
Burke	12	17	17	17	17	12	10	13	18	17	18	22	22	21	23
Cabarrus	27	23	20	20	10	14	21	8	11	11	12	15	16	27	28
Caldwell	13	15	14	12	[illegible]	12	12	12	13	15	18	17	17	17	20
Camden *e*															
Carteret	11	12	12	12	12	12	11	12	10	2	3	2	4	6	6
Caswell *f*							11								
Catawba	17	13	13	16	8	16	16	16	14	19	19	15	13	21	19
Chatham	9	9	4	3	2	3	2	0	1	3	6	[illegible]	6	7	7
Cherokee	10	10	9	8	5	8	8	8	7	12	11	11	10	14	12
Chowan-Perquimans	7	8	6	7	6	7	5	4	2	5	5	3	5	7	7
Clay *g*															
Cleveland	22	23	19	22	21	20	21	22	21	25	23	27	28	30	39
Columbus	14	15	10	8	8	10	11	10	7	9	16	18	15	17	18
Craven	14	13	13	14	[illegible]	5	10	6	6	8	7	7	11	12	14
Cumberland	22	26	23	21	27	27	27	21	24	24	22	22	13	27	25
Currituck *h*	1	1	1	1											
Dare *e*															
Davidson	17	16	17	17	17	20	23	19	24	18	17	29	31	29	29
Davie *i*	5	5	5	6	4	2	1	[illegible]	[illegible]	4					
Duplin	11	9	11	7	2	2	9	2	2	4	2	4	10	12	7
Durham-Orange	65	67	76	77	76	76	85	87	81	104	110	119	127	128	135
Edgecombe-Nash	7	10	43	39	25	46	49	32	35	31	39	48	40	37	48
Forsyth	59	70	66	69	70	73	77	77	73	83	82	93	92	115	122
Franklin	11	10	9	7	7	9	8	9	9	6	3		3	4	5
Gaston	39	36	33	37	12	28	30	21	28	38	35	35	41	48	44
Gates	2	2	2	2	2	2	2	2	2	1	2	1	1	[illegible]	3
Graham															
Granville	13	13	13	12	10	10	11	10	11	13	13	14	14	14	14
Greene	5	5	5	5	5	6	5	6	6	7	6	5	6	7	6
Guilford	130	124	124	118	91	102	99	83	109	101	108	110	115	127	133
Halifax	17	16	15	14	13	15	18	17	25	23	23	24	21	26	26
Harnett	15	14	13	15	16	14	15	10	16	12	12	16	18	18	19
Haywood	14	14	12	13	15	20	19	21	22	21	21	21	19	21	20
Henderson	16	19	14	12	9	17	17	13	14	17	13	10	7	17	17
Henderson-Polk *j*															
Hertford	6	5	5	5	6	7	7	4	5	7	[illegible]	1	6	6	8
Hoke	14	14	14	12	11	13	14	13	11	10	7	10	10	11	9
Hyde	1	1	1	1		1	1								
Iredell-Alexander	39	38	38	39	29	38	38	39	30	31	25	27	24	23	26
Jackson	6	6	3	7	2	4	7	4	6	3	3	1	[illegible]	2	[illegible]
Johnston	18	23	25	20	19	19	21	12	9	27	25	24	18	18	22
Jones	3	3	3	3	3	3	3	3	2	[illegible]					
Lee	16	13	11	13	10	10	10	3	8	10	9	10	11	12	11
Lenoir	20	22	17	19	20	22	20	22	21	22	21	25	24	26	27
Lincoln	14	13	10	12	12	13	11	8	10	11	11	11	14	15	15
Macon-Clay	6	8	4	3	2	5	3	5	4	2	4	1	4	4	4
Madison	7	5	3	4	5	4	[illegible]	1		[illegible]	[illegible]			1	1
Martin *k*	10	8	7	4											
Martin-Washington-Tyrrell					10	10	12	10	12	13	13	11	15	12	14
McDowell	9	12	[illegible]	10	11	10	13	10	6	10	12	13	14	13	12

STATUS OF MEMBERSHIP BY COUNTIES—Continued

COUNTY	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
Mecklenburg	125	128	124	117	104	108	116	116	125	119	119	130	138	127	131
Mitchell						3	2	3	3	2	3	3	4		
Mitchell-Avery					8										
Mitcheli-Watauga	8	6	5	5											
Mitchell-Yancey															
Montgomery														7	5
Moore	11	9	10	9	7	9	9	8	7	3	6	4	5	6	5
Nash	22	17	21	21	18	22	21	19	22	21	20	19	17	22	21
New Hanover	30	33													
Northampton	32	38	37	35	25	35	39	34	36	32	39	37	38	43	44
Onslow	6	3	4	5	4	8	4	4	4	9	1	3	7	4	4
Orange *m*	5	5	5	6	6	6	5	2	5	4	4	3	5	8	8
Pamlico															
Pasquotank-Camden-Currituck-Dare	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3
Pasquotank-Camden-Dare *h*					12	14	12	11	9		9	11	10	14	13
Pender	14	17	14	11											
Perquimans *n*	1	1	1	1	1	1	1		1	1				1	1
Person															
Pitt	6	6	6	6	7	7	8	7	7	8	8	9	8	8	9
Polk	24	27	27	20	14	22	26	24	26	30	29	28	25	29	30
Randolph	6	6	5	7	7	6	6	4	5	5	5	6	6	6	6
Richmond	10	8	7	14	10	11	13	10	9	11	11	13	12	12	13
Robeson	14	17	17	15	16	15	16	15	17	16	15	16	16	15	17
Rockingham	21	24	21	22	23	25	27	28	29	34	33	35	35	35	36
Rowan-Davie	20	24	24	21	22	23	21	18	20	18	22	22	26	24	29
Rutherford	35	35	39	33	24	34	30	27	28	26	24	27	34	33	33
Sampson	22	22	21	21	19	20	21	23	22	23	23	24	22	22	22
Scotland	10	13	13	14	14	14	14	14	16	16	16	18	18	16	15
Stanly	12	10	11	11	11	11	11	10	11	11	10	10	10	10	9
Stokes	14	16	15	13	12	16	17	18	19	18	20	16	17	20	20
Surry *o*	6	2	6	6	1	1	1								
Surry-Yadkin	20	20	13	17	12										
Swain						25	22	17	15	14	12	18	16	19	23
Transylvania						3		4	5	3	3		2	3	3
Tyrrell *p*	4	2	2	1	3	2	2	2		2	3	1	7	8	10
Union	14	13	10	9	10	10	11	10	8	11	13	13	14	15	14
Vance	11	12	8	7	8	9	9	8	8	6	10	10	10	12	10
Wake	84	94	87	86	87	89	88	89	95	100	95	94	93	87	98
Warren	6	6	6	6	5	5	6	2	2	2	2	3	2	3	4
Washington-Tyrrell *k*	5	3	3	3											
Watauga *c q*															
Watauga-Ashe					3	5	6	5	5	6	6	4	5	7	8
Wayne	38	38	30	32	22	27	29	27	29	30	31	34	33	35	38
Wilkes *b*	10	10	11	10											
Wilkes-Alleghany					9	13	10	14	13	14	15	13	16	17	17
Wilson	31	28	28	22	21	25	29	31	25	25	24	25	27	27	31
Yadkin *o*	5	10		4	1										
Yancey	3	4	1	1		5	4	1		4					
Totals	1,669	1,694	1,600	1,559	1,363	1,563	1,619	1,462	1,503	1,715	1,605	1,661	1,694	1 837	1,919

a See Iredell-Alexander; *b* See Wilkes-Alleghany; *c* See Watauga Ashe; *d* See Mitchell-Avery; *e* See Pasquotank-Camden-Dare; *f* See Alamance-Caswell; *g* See Macon-Clay; *h* See Pasquotank-Camden-Currituck-Dare; *i* See Rowan; *j* See Henderson or Polk; *k* See Martin-Washington Tyrrell; *l* See Edgecomb-Nash for years after 1931; *m* See Durham-Orange; *n* See Chowan-Perquimans; *o* See Surry-Yadkin; *p* See Washington-Tyrrell; *q* See Mitchell-Watauga.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH FROM ORGANIZATION IN 1877 TO 1943

Name	*Address*	*Appointed by*	*Term*
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1884 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1886
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887

Name	Address	Appointed by	Term
William D. Hilliard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1888
H. T. Bahnson, M.D., President	Winston	State Society	1887 to 1888
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1889
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1892
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1893
J. M. Baker, M.D.	Tarboro	State Society	1891 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1892
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1892 to 1897
Thomas F. Wood, M.D., Secretary†	Wilmington	State Society	1891 to 1895
George G. Thomas, M.D., President	Wilmington	State Board of Health	1892 to 1895
S. Westray Battle, M.D.	Asheville	State Society	1893 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1893 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1894 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1897 to 1899
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1897 to 1899
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	State Society	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
H. H. Dodson, M.D.	Milton	Gov. C. B. Aycock	1901 to 1907
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1905
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	State Society	1901 to 1907
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1905
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	Gov. C. B. Aycock	1903 to 1909
J. L. Ludlow, Civil Engineer	Winston	Gov. R. B. Glenn	1905 to 1911
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	State Society	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1907 to 1913
Thomas E. Anderson, M.D.	Statesville	Gov. R. B. Glenn	1907 to 1913
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1909
E. C. Register, M.D.	Charlotte	State Society	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1909 to 1913
James A. Burroughs, M.D.‡	Asheville	State Board of Health	1909 to 1913
J. E. Ashcraft, M.D.	Monroe	Gov. W. W. Kitchin	1911 to 1917
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	State Society	1911 to 1917
Thomas E. Anderson, M.D.	Statesville		

† Died in 1892, leaving a five-year unexpired term, which was filled by the Board.
‡ Died leaving unexpired term.

Name	Address	Appointed by	Term
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1913 to 1919
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1915
A. A. Kent, M.D.[2]	Lenoir	State Society	1913 to 1919
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1915 to 1921
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1917 to 1923
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.[1]	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1919 to 1923
Fletcher R. Harris, M.D.[3]	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1921 to 1923
Chas. E. Waddell, C.E.[4]	Asheville	Gov. C. Morrison	1919 to 1925
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1923 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1929
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1927
James P. Stowe, Ph.G.	Charlotte	Gov. C. Morrison	1923 to 1925
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1929
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1926
Charles O'H. Laughinghouse, M.D.[5]	Greenville	State Society	1925 to 1931
Cyrus Thompson, M.D.[1]	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D.[1]	Raleigh	Gov. A. W. McLean	1926 to 1931
Jno. B. Wright, M.D.[6]	Raleigh	Gov. A. W. McLean	1925 to 1931
E. J. Tucker, D.D.S.[6]	Roxboro	Gov. A. W. McLean	1926 to 1927
W. S. Rankin, M.D.[4]	Charlotte	State Board of Health	1927 to 1929
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas C. Orr, M.D.	Asheville	Gov. A. W. McLean	1929 to 1935
Thomas E. Anderson, M.D.[6]	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D.[6]	Jackson	State Society	1927 to 1933
James P. Stowe, Ph.G.[6]	Charlotte	Gov. A. W. McLean	1929 to 1935
A. J. Crowell, M.D.[6]	Charlotte	Gov. O. Max Gardner	1930 to 1931
J. M. Parrott, M.D.[6]	Kinston	State Board of Health	1929 to 1935
Chas. C. Orr, M.D.[6]	Asheville	Gov. O. Max Gardner	1931 to 1935
J. M. Parrott, M.D.[5]	Kinston	State Society	1931 to 1935
C. V. Reynolds, M.D.	Asheville	State Society	1931 to 1933
L. B. Evans, M.D.	Windsor	State Society	1931 to 1933
S. D. Craig, M.D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M.D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935
Grady G. Dixon, M.D.[7]	Ayden	Ex. Com. State Society	1931 to 1932
Grady G. Dixon, M.D.[7]	Ayden	State Society	1932 to 1935
S. D. Craig, M.D.	Winston-Salem	State Society	1933 to 1937
W. T. Rainey, M.D.	Fayetteville	State Society	1933 to 1937
J. N. Johnson, D.D.S.	Goldsboro	Gov. J. C. B. Ehringhaus	1933 to 1937
Hubert B. Haywood, M.D.	Raleigh	Gov. J. C. B. Ehringhaus	1933 to 1937
Jomes P. Stowe, Ph.G.	Charlotte	Gov. J. C. B. Ehringhaus	1933 to 1937
Grady G. Dixon, M.D.	Ayden	State Society	1935 to 1939
J. LaBruce Ward, M.D.	Asheville	State Society	1935 to 1939
H. Lee Large, M.D.	Rocky Mount	Gov. J. C. B. Ehringhaus	1935 to 1939
H. G. Baity, C.E.	Chapel Hill	Gov. J. C. B. Ehringhaus	1935 to 1939
J. N. Johnson, D.D.S.	Goldsboro	Gov. Clyde R. Hoey	1937 to 1941
Hubert B. Haywood, M.D.	Raleigh	Gov. Clyde R. Hoey	1937 to 1941
James P. Stowe, Ph.G.	Charlotte	Gov. Clyde R. Hoey	1937 to 1941
S. D. Craig, M.D.	Winston-Salem	State Society	1937 to 1941
W. T. Rainey, M.D.	Fayetteville	State Society	1937 to 1941
Grady G. Dixon, M.D.	Ayden	State Society	1939 to 1943
J. LaBruce Ward, M.D.	Asheville	State Society	1939 to 1943
H. Lee Large, M.D.	Rocky Mount	Gov. Clyde R. Hoey	1939 to 1943
H. G. Baity, Sc.D.	Chapel Hill	Gov. Clyde R. Hoey	1939 to 1943
C. C. Fordham, Jr., Ph.G.[8]	Greensboro	Gov. Clyde R. Hoey	1940 to 1943
S. D. Craig, M.D.	Winston-Salem	State Society	1941 to 1945
W. T. Rainey, M.D.	Fayetteville	State Society	1941 to 1945
Grady G. Dixon	Ayden	State Society	1943 to 1947
J. LaBruce Ward	Asheville	State Society	1943 to 1947

2 Resigned to become member of General Assembly.
3 Resigned to become Health Officer Vance County.
4 Resigned.
5 Resigned to become Secretary of State Board of Health.
6 Term terminated on account of the reorganization of the State Board of Health by General Assembly.
7 To fill vacancy caused by resignation of Dr. J. M. Parrott.
8 To fill vacancy caused by the death of James P. Stowe, Ph.G.

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

James H. Dickson, Wilmington....1859-1866
Charles E. Johnson, Raleigh....1859-1866
Caleb Winslow, Hertford....1859-1866
Otis F. Manson, Townsville....1859-1866
William H. McKee, Raleigh....1859-1866
Christopher Happoldt, Morganton....1859-1866
J. Graham Tull, New Bern....1859-1866
Samuel T. Iredell, Secretary....1859-1866

SECOND BOARD

N. J. Pittman, Tarboro....1866-1872
E. Burke Haywood, Raleigh....1866-1872
R. H. Winborne, Edenton....1866-1872
S. S. Satchwell, Rocky Point....1866-1872
J. J. Summerell, Salisbury....1866-1872
R. B. Haywood, Raleigh....1866-1872
M. Whitehead, Salisbury....1866-1872
J. F. Shaffner, Salem....1866-1872
William Little, Secretary....1866-1872
Thomas F. Wood, Secretary, Wilmington....1867-1872

THIRD BOARD

Charles J. O'Hagan, Greenville....1872-1878
W. A. B. Norcom, Edenton....1872-1878
C. Tate Murphy, Clinton....1872-1878
George A. Foote, Warrenton....1872-1878
J. W. Jones, Tarboro....1872-1878
R. L. Payne, Lexington....1872-1878
Charles Duffy, Jr., Secretary, New Bern....1872-1878

FOURTH BOARD

Peter E. Hines, Raleigh....1878-1884
Thomas D. Haigh, Fayetteville....1878-1884
George L. Kirby, Goldsboro....1878-1884
Thomas F. Wood, Wilmington....1878-1884
Joseph Graham, Charlotte....1878-1884
Robert I. Hicks, Williamston[1]....1878-1880
Richard H. Lewis, Raleigh[2]....1880-1884
Henry T. Bahnson, Secretary, Salem....1878-1884

FIFTH BOARD

William R. Wood, Scotland Neck....1884-1890
Augustus W. Knox, Raleigh....1884-1890
Francis Duffy, New Bern....1884-1890
Patrick L. Murphy, Morganton....1884-1890
Willis Alston, Littleton....1884-1890
J. A. Reagan, Weaverville....1884-1890
W. J. H. Bellamy, Secretary, Wilmington....1884-1890

SIXTH AND SEVENTH BOARDS[3]

R. L. Payne, Jr., Lexington....1890-1892
George W. Purefoy, Asheville....1890-1892
George G. Thomas, Wilmington....1890-1894
Robert S. Young, Concord....1890-1894
William H. Whitehead, Rocky Mount....1890-1896
George W. Long, Graham....1890-1896
L. J. Picot, Secretary, Littleton....1890-1896
Julian M. Baker, Tarboro....1892-1898
H. B. Weaver, Secretary, Asheville....1892-1898
J. M. Hays, Greensboro[4]....1894-1897
Kemp P. Battle, Jr., Raleigh[5]....1897-1900
Thomas S. Burbank, Wilmington[1]....1894-1898
Richard H. Whitehead, Chapel Hill[4]....1896-1898
William H. H. Cobb, Goldsboro[6]....1898-1900
J. Howell Way, Secretary, Waynesville[7]....1898-1902
David T. Tayloe, Washington....1896-1902
Thomas E. Anderson, Sec., Statesville....1896-1902
Albert Anderson, Wilson[8]....1898-1902
Edward C. Register, Charlotte[8]....1898-1902
Thomas S. McMullan, Hertford[8]....1900-1902
John C. Walton[8]....1900-1902

EIGHTH BOARD

A. A. Kent, Lenoir....1902-1908
Charles O'H. Laughinghouse, Greenville....1902-1908
M. H. Fletcher, Asheville....1902-1908
James M. Parrott, Kinston....1902-1908
J. T. J. Battle, Greensboro....1902-1908
Frank H. Russell, Wilmington....1902-1908
George W. Pressly, Secretary, Charlotte[1] 1902-1906
G. T. Sikes, Secretary, Grissom[9]....1906-1908

NINTH BOARD

Lewis B. McBrayer, Asheville....1908-1914
John C. Rodman, Washington....1908-1914
William W. McKenzie, Salisbury....1908-1914
Henry H. Dodson, Greensboro....1908-1914
John Bynum, Winston-Salem....1908-1914
J. L. Nicholson, Richlands....1908-1914
Benj. K. Hays, Secretary, Oxford....1908-1914

TENTH BOARD

Isaac M. Taylor, Morganton....1914-1920
John Q. Myers, Charlotte....1914-1920
Jacob F. Highsmith, Fayetteville....1914-1920
Martin L. Stevens, Asheville....1914-1920
Charles T. Harper, Wilmington[4]....1914-1915
Edwin G. Moore, Elm City[10]....1915-1920
John G. Blount, Washington[11]....1914-1920
Hubert A. Royster, Secretary, Raleigh....1914--920

ELEVENTH BOARD

Lester A. Crowell, Lincolnton....1920-1926
William P. Holt, Duke....1920-1926
J. Gerald Murphy, Wilmington....1920-1926
Lucius N. Glenn, Gastonia....1920-1926
Clarence A. Shore, Raleigh....1920-1926
William M. Jones, Greensboro....1920-1926
Kemp P. B. Bonner, Sec., Morehead City....1920-1926

TWELFTH BOARD

Paul H. Ringer, Asheville....1926-1932
W. Houston Moore, Wilmington....1926-1932
T. W. M. Long, Roanoke Rapids....1926-1932
W. W. Dawson, Grifton[4]....1926-1930
J. K. Pepper, Winston-Salem....1926-1932
Foy Roberson, Durham....1926-1932
John W. McConnell, Secretary, Davidson....1926-1932
David T. Tayloe, Jr., Washington[12]....1930-1932

1 Resigned before expiration of term.

2 Elected for unexpired term of Dr. Hicks.

3 In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

4 Died before the expiration of his term.

5 Elected to serve unexpired term of Dr. Hays.

6 Elected to serve the unexpired term of Dr. Burbank.

7 Elected to serve the unexpired term of Dr. Whitehead.

8 Elected for short term expiring in 1902.

9 Elected to serve the unexpired term of Dr. Pressly.

10 Elected to serve the unexpired term of Dr. Harper.

11 Died a few months before the expiration of his term; such a short time that the vacancy was not filled.

12 Elected to serve unexpired term of Dr. W. W. Dawson.

THIRTEENTH BOARD

Ben F. Royal, Morehead City.....1932-1938
Benj. J. Lawrence, Secretary, Raleigh.....1932-1938
F. Webb Griffith, Asheville.....1932-1938
Hamilton W. McKay, Charlotte.....1932-1938
J. W. Vernon, Morganton.....1932-1938
W. H. Smith, Goldsboro.....1932-1938
K. G. Averitt, Cedar Creek[4].....1932-1938
Roscoe D. McMillan, Red Springs[13].....1936-1938

FOURTEENTH BOARD

Karl B. Pace, Greenville.....1938-1944
William M. Coppridge, Durham.....1938-1944
Frank A. Sharpe, Greensboro.....1938-1944
Lewis W. Elias, Asheville.....1938-1944
J. Street Brewer, Roseboro.....1938-1944
W. D. James, Secretary, Hamlet.....1938-1944
L. A. Crowell, Jr., Lincolnton.....1938-1944

13 Elected to serve unexpired term of Dr. Averitt.

MOORE COUNTY MEDICAL SOCIETY MEDAL

In 1927 the Moore County Medical Society kindly put up enough money, the interest from which would pay for a medal to be given for the best paper read before the meeting each year. No one is eligible to receive this medal except Fellows of the Medical Society of the State of North Carolina in good standing; no invited guest is allowed to compete.

Each Section Chairman selects a committee of three to pass on the best paper written in their section. These six papers are then turned over to the State Committee who pass on the best of the six papers, the winner in this instance to receive the medal. The following Fellows have been awarded this medal:

1928—Paul Pressly McCain, M.D.....Sanatorium
"The Diagnosis and Significance of Juvenile Tuberculosis"
(From Section on Pediatrics)

1929—A. B. Holmes, M.D.....Fairmont
"The Treatment of Uremia"
(From Section on Chemistry, Materia Medica and Therapeutics)

1930—C. T. Smith, M.D., and W. Bernard Kinlaw, M.D.....Rocky Mount
"The Clinical Consideration of Anaemia of Pregnancy and of Puerperium"
(From Section on Practice of Medicine)

1931—F. C. Smith, M.D.....Charlotte
"Practical Value of Perimetry in Intracranial Conditions; Case Reports" (tumors, vascular disease, toxemia, syphilis and trauma)
(From Section on Eye, Ear, Nose and Throat)

1932—Charles I. Allen, M.D.....Wadesboro
"An Improved Splint for Treating Fractures of the Lower Extremity Showing Reduction and Skeletal Distraction Attachments"
(From Section on Surgery)

1933—H. F. Sloan, M.D.....Charlotte
"Some General Remarks about Cataract Surgery, With Report of 100 Consecutive Uncomplicated Cataract Operations"
(From Section on Ophthalmology and Otolaryngology)

J. R. Adams, M.D.....Charlotte
"Hypo-glycaemia in Children"
(From Section on Pediatrics)

1934—Fred E. Motley, M.D.....Charlotte
"Complications of Mastoiditis with Special Reference to Septicemia"
(From Section on Ophthalmology and Otolaryngology)

1935—Arthur H. London, M.D.....Durham
"The Composition of an Average Pediatrics Practice"
(From Section on Pediatrics)

1936—V. K. Hart, M.D.....Charlotte
"Etiological and Therapeutic Aspects of Bronchiectasis with Clinical Observations on Bronchial Lavage by the Stitt Method"
(From Section on Ophthalmology and Otolaryngology)

1937—No award made.

1938—O. Hunter Jones, M.D.....Charlotte
"Pelvic Architecture and Classification with its Practical Application"
(From Section on Gynecology and Obstetrics)

1939—Donnell B. Cobb, M.D.....Goldsboro
"Vaginal Ureterolithotomy"
(From Section on Surgery)

1940—C. R. Monroe, M.D., C. D. Thomas, M.D., and C. L. Gray, M.D.....Pinehurst
"Thoracoplasty and Apicolysis"
(From Section on Surgery)

1941—Walter R. Johnson, M. D.....Asheville
"Is Diverticulitis of the Colon a Surgical Disease?"
(From Section on Practice of Medicine)

1942—E. P. Alyea, M.D.....Durham
"Castration for Carcinoma of the Prostate Gland"
(From Section on Surgery)

OFFICERS

OFFICERS 1942-1943

President—Donnell B. Cobb, M.D.....Goldsboro
President-Elect—James W. Vernon, M.D., Morganton
First Vice Pres.—George S. Coleman, M.D.....Raleigh
Second Vice Pres.—Julian Moore, M.D.....Asheville
Sec.-Treas.—Roscoe D. McMillan, M.D., Red Springs

OFFICERS 1943-1944

President—James W. Vernon, M.D.....Morganton
President-Elect—Paul F. Whitaker, M.D.....Kinston
First Vice Pres.—Fred C. Hubbard, M.D., North Wilkesboro
Second Vice Pres.—George L. Carrington, M.D., Burlington
Sec.-Treas.—Roscoe D. McMillan, M.D., Red Springs

COUNCILORS 1943-1946

First District—H. D. Walker, M.D., Elizabeth City
Second District—T. Leslie Lee, M.D.....Kinston
Third District—Paul Crumpler, M.D.....Clinton
Fourth District—Newsom P. Battle, M.D., Rocky Mount
Fifth District—F. L. Knight, M.D.....Sanford
Sixth District—M. D. Hill, M.D.....Raleigh
Seventh District—Joseph A. Elliott, M.D.....Charlotte
Eighth District—M. D. Bonner, M.D.....Jamestown
Ninth District—I. E. Shafer, M.D.....Salisbury
Tenth District—C. C. Orr, M.D.....Asheville

SECTION CHAIRMEN 1943-1944

General Practice of Medicine and Surgery—Frank B. Marsh, M.D., Salisbury
Gynecology and Obstetrics—William A. Graham, M.D., Durham
Ophthalmology and Otolaryngology—A. J. Ellington, M.D., Burlington
Pediatrics—Angus McBryde, M.D.....Durham
Practice of Medicine — Walter R. Johnson, M.D., Asheville
Public Health and Education—E. R. Hardin, M.D., Lumberton
Surgery—C. A. Woodard, M.D.....Wilson

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Ross S. McElwee, M.D. (1943-1944).....Statesville
W. C. Davison, M.D. (1942-1944).....Durham
Roscoe D. McMillan, M.D.....Red Springs
Wingate M. Johnson, M.D., Alternate, Winston-Salem
B. O. Edwads, M.D., Alternate.....Asheville
Donnell B. Cobb, M.D., Alternate.....Goldsboro

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA, 1943 MEETING

W. A. Peters, M.D.....Elizabeth City
H. B. Ivey, M.D.....Goldsboro
Leroy J. Butler, M.D.....Winston-Salem

DELEGATES TO MEDICAL ASSOCIATION OF SOUTH CAROLINA, 1944 MEETING

Joseph A. Elliott, M.D.....Charlotte
R. L. Fike, M.D.....Wilson
W. T. Parker, M.D.....Fayetteville

COMMITTEES

1943-1944

Advisory to Industrial Commission

O. L. Miller, M.D., Chairman.....Charlotte
R. O. Lyday, M.D.....Greensboro
J. P. Rousseau, M.D.....Winston-Salem

Committee to Revise Industrial Fee Schedule

Harry Winkler, M.D., Chairman.....Charlotte
Glenn Frye, M.D.....Hickory
J. F. Robertson, M.D.....Wilmington

Advisory Committee on Maternity and Infancy Welfare for the Children's Bureau

Angus McBryde, M.D., Chairman.....Durham
Thomas M. Watson, M.D.....Greenville
Frank R. Lock, M.D.....Winston-Salem

Advisory to Auxiliary

Rachel Davis, M.D., Chairman.....Kinston
Annie Louise Wilkerson, M.D.....Raleigh
F. M. Patterson, M.D.....Greensboro
F. M. Houser, M.D.....Cherryville

Cancer

H. B. Ivey, M.D., Chairman.....Goldsboro
J. P. Rousseau, M.D.....Winston-Salem
T. Leslie Lee, M.D.....Kinston

Commercializing Drugs

Thomas L. Umphlet, M.D., Chairman.....Raleigh
C. M. Gilmore, M.D.....Greensboro
R. H. Bellamy, M.D.....Wilmington

Finance

Vance P. Peery, M.D., Chairman.....Kinston
W. H. Sprunt, M.D.....Winston-Salem
W. M. Coppridge, M.D.....Durham

Hospitals

Moir S. Martin, M.D., Chairman.....Mt. Airy
R. L. Pittman, M.D.....Fayetteville
R. T. Ferguson, M.D.....Charlotte

Industrial Health

D. W. Holt, M.D., Chairman.....Greensboro
Elias Faison, M.D.....Charlotte
C. V. Tyner, M.D.....Leaksville
F. R. Taylor, M.D.....High Point

Legislation

Hubert B. Haywood, M.D., Chairman.....Raleigh
Ross S. McElwee, M.D.....Statesville
Ben F. Royal, M.D.....Morehead City

Medical Society Foundation

John Q. Myers, M.D., Chairman (1941-1945) Charlotte
Ross S. McElwee, M.D. (1940-1944).....Statesville
J. A. Shaw, M.D. (1942-1946).....Fayetteville
Ben J. Lawrence, M.D. (1943-1947).....Raleigh

Mental Hygiene

W. T. Parrott, M.D., Chairman.....Kinston
J. R. Saunders, M.D.....Morganton
J. F. Owen, M.D.....Raleigh

Moore County Medical Society Medal

W. T. Rainey, M.D., Chairman.....Fayetteville
H. M. Starling, M.D.....Winston-Salem
V. D. Offutt, M.D.....Kinston

Obituaries

L. R. Hedgpeth, M.D., Chairman.....Lumberton
S. A. Saunders, M.D.....Aulander
E. M. Carr, M.D.....Asheville

Postgraduate Medical Study

W. H. Smith, M.D., Chairman.....Goldsboro
R. F. Leinbach, M.D.....Charlotte
W. Reece Berryhill, M.D.....Chapel Hill
W. C. Davison, M.D.....Durham
C. C. Carpenter, M.D.....Winston-Salem
G. M. Cooper, M.D.....Raleigh

Printing

Roscoe D. McMillan, M.D., Chairman.....Red Springs
Wingate M. Johnson, M.D.....Winston-Salem
V. M. Hicks, M.D.....Raleigh

Public Relations

R. H. Crawford, M.D., Chairman.....Rutherfordton
Charles I. Allen, M.D.....Wadesboro
John C. Tayloe, M.D.....Washington

Committee on Planning Medical Policies

F. Webb Griffith, M.D., Chairman.....Asheville
Wingate M. Johnson, M.D.....Winston-Salem
Paul F. Whitaker, M.D.....Kinston
Roscoe D. McMillan, M.D.....Red Springs

Syphilis Control

W. E. Daniel, M.D., Chairman.....Charlotte
E. R. Hardin, M.D.....Lumberton
W. N. Sisk, M.D.....Asheville

Tuberculosis

C. D. Thomas, M.D., Chairman.....Sanatorium
M. D. Bonner, M.D.....Jamestown
J. W. Huston, M.D.....Asheville

Scientific Work

Roscoe D. McMillan, M.D., Chairman.....Red Springs
James F. O'Neill, M.D.....Winston-Salem
Lenox D. Baker, M.D.....Durham

Medical Preparedness

Hubert B. Haywood, M.D., Chairman.....Raleigh
F. Webb Griffith, M.D.....Asheville
Carl V. Reynolds, M.D.....Raleigh

Insurance

Hamilton W. McKay, M.D., Chairman.....Charlotte
Paul P. McCain, M.D.....Sanatorium
Julian Moore, M.D.....Asheville

Committee to Revise the Constitution and By-Laws

Hubert A. Royster, M.D., Chairman.....Raleigh
James W. Vernon, M.D.....Morganton
F. Webb Griffith, M.D.....Asheville
George W. Mitchell, M.D.....Wilson
Roscoe D. McMillan, M.D.....Red Springs

Committee to Consult with Nurses Association Regarding Shortage of Nurses

Russell O. Lyday, M.D., Chairman.....Greensboro
Moir S. Martin, M.D.....Mt. Airy
Edgar P. Norfleet, M.D.....Roxobel

Board of Medical Examiners of the State of North Carolina 1938-1944

President—L. A. Crowell, Jr., M.D.....Lincolnton
Secretary-Treas.—W. D. James, Sr., M.D.....Hamlet
Karl B. Pace, M.D.....Greenville
Frank A. Sharpe, M.D.....Greensboro
Lewis W. Elias, M.D.....Asheville
J. Street Brewer, M.D.....Roseboro
William M. Coppridge, M.D.....Durham

Member, North Carolina Board of Nurse Examiners, 1943-1946

J. K. Pepper, M.D.....Winston-Salem

Arrangements

Roscoe D. McMillan, M.D., Chairman....Red Springs
Place of 1944 meeting.....Pinehurst
Time of 1944 meeting to be determined at a later date.

SESSIONS OF THE HOUSE OF DELEGATES

MONDAY AFTERNOON SESSION
May 10, 1943

The House of Delegates of the Medical Society of the State of North Carolina convened for its Ninetieth Annual Session on Monday, May 10, 1943, at 2 p.m., in the Virginia Dare Ballroom of the Sir Walter Hotel, Raleigh, with the President, Dr. Donnell B. Cobb, of Goldsboro, in the chair.

President Cobb: Gentlemen, we will come to order for the first meeting of the House of Delegates.

I am going to ask Dr. William H. Smith to offer the invocation.

. . . Dr. William H. Smith, of Goldsboro, then gave the invocation.

President Cobb: We will now have the roll call of the delegates.

. . . The roll was called by the Secretary, Dr. Roscoe D. McMillan, and the following delegates were present:

County Society	Delegate
Alamance-Caswell	
Anson	
Avery	J. A. Brown
Beaufort	Marion Palmer
Bertie	J. E. Smith
Bladen	
Brunswick	
Buncombe	B. O. Edwards, C. C. Orr, J. A. Moore
Burke	
Cabarrus	D. E. Yow
Caldwell	B. L. Bass
Cartaret	Ben F. Royal
Catawba	
Chatham	
Cherokee	
Chowan-Perquimans	
Cleveland	Ben H. Kendall
Columbus	
Craven	
Cumberland	J. A. Shaw
Davidson	J. R. Terry
Duplin	
Durham-Orange	W. R. Berryhill, W. M. Coppridge
Edgecombe-Nash	N. P. Battle
Forsyth	P. W. Johnson, E. V. Benbow
Franklin	
Gaston	C. R. McAdams
Gates	T. L. Carter
Graham	
Granville	Ballard Norwood
Greene	
Guilford	H. L. Brockmann, F. M. Patterson
Halifax	
Harnett	W. P. Holt, Sr.
Haywood	C. N. Sisk
Henderson	
Hertford	
Hoke	
Hyde	
Iredell-Alexander	Ross S. McElwee
Jackson	
Johnston	
Jones	
Lee	
Lenoir	V. D. Offutt
Lincoln	
Macon-Clay	
Madison	
Martin-Washington-Tyrrell	
McDowell	D. M. McIntosh, Sr., J. F. Jonas
Mecklenburg	J. A. Elliott, H. L. Sloan
Mitchell-Yancey	
Montgomery	
Moore	F. L. Owens
New Hanover	J. F. Robertson
Northampton	
Onslow	
Pamlico	
Pasquotank-Camden-Currituck-Dare	J. H. Bonner
Pender	
Person	
Pitt	J. L. Winstead
Polk	M. C. Palmer
Randolph	
Richmond	W. D. James, Sr.
Robeson	George C. Allen
Rockingham	
Rowan-Davie	T. W. Seay
Rutherford	R. H. Crawford
Sampson	
Scotland	Marcus B. Wilkes, Harry Summerlin
Stanly	W. N. McKenzie
Surry-Yadkin	L. S. Hall
Swain	
Transylvania	
Union	K. E. Neese
Vance	
Wake	M. D. Hill, I. M. Procter, J. J. Combs, V. S. Caviness
Warren	
Watauga-Ashe	
Wayne	C. F. Strosnider, W. H. Smith
Wilkes-Alleghany	H. B. Smith
Wilson	M. A. Pittman

Secretary-Treasurer McMillan: Mr. President, we have a quorum.

President Cobb: Since we have a quorum, gentlemen, we will proceed with our regular order of business.

I ask the first vice president, Dr. George S. Coleman, to take the chair.

. . . Vice President Coleman came to the platform.

Vice President Coleman: Gentlemen, we will now have the President's Message to the House of Delegates, by Dr. Donnell Cobb.

President Cobb:

President's Message to the House of Delegates

Being one of the war time presidents of our Society has been a most pleasant undertaking, but not an easy one. The privileges and duties of this office have carried your secretary and me to most sections of our state. We have been able to attend most of the district meetings and some of the larger county meetings and many important committee meetings. It has not seemed necessary to call a meeting of our executive committee.

The outstanding medical event during the past year has been the withdrawal from civilian service of nearly one-third of all the active physicians of the country for duty with our armed forces. Dr. Hubert B. Haywood, chairman of our Medical Preparedness Committee, is also state chairman of the Procurement and Assignment Service by virtue of his appointment by Mr. Paul V. McNutt, chairman of the War Manpower Commission. Under Dr. Haywood's guidance and leadership, North Carolina was one of the first states to fill its quota of physicians.

Such an accomplishment is not only evidence of the efficiency of our state chairman and of the unselfish cooperation of the various county committees which work with him, but also is an indelible record of the patriotism of the doctors of North Carolina. We know that our profession shall meet its obligations in the future with the same patriotic cooperation with which it has met them in the year just past.

If in the future there proves to be a shortage of doctors in any location in our state, such a shortage can be filled in one of three ways.

(1) The Public Health Service can send uniformed physicians to the areas to provide medical care under direct government supervision and control.

(2) Physicians from other states, in which there has not been a depletion, who are disqualified for military service because of age or physical handicap and who are willing to serve their country and their profession by going from one area to another, can be granted an emergency temporary license.

(3) Alien physicians, now numbering approximately 6,000 in our country, who proclaim their desire to serve the civil population, can be utilized in like manner.

Because medical service is at its best when it is supervised by the medical profession, it behooves our organization to retain the leadership in providing and controlling this service, rather than let it seem necessary for the government to send in physicians as it deems advisable. Our Procurement and Assignment Service will make every effort to relocate physicians wherever the need arises. Nevertheless, it remains the sole responsibility of our Board of Medical Examiners to determine who shall be granted licenses to practice in our state, whether on a temporary or permanent basis.

In addition to more than meeting our requirements for the armed forces, the physicians of North Carolina have examined and are still examining all inductees for the army without cost to the government.

It is with pride and satisfaction that we can point to the fact that all male high school junior and senior students, both white and colored, have been given physical examinations by the doctors without cost to the state, the school system, or the students. This was done at the request of Governor Broughton. So far no specific recommendations have been made for the correction of the remediable defects. The fact that the army has lowered its standards for the acceptance of selectees and has arranged to give treatment to some of them after induction probably explains why no definite action has been taken to follow through to completion this tremendous amount of work and time that the doctors have given in an effort to better the physical conditions of the youth of our country.

The work of our Advisory Medical Committee to the Industrial Commission has continued and has made definite progress under the chairmanship of Dr. Newsom Battle. This committee has been successful in arranging with the Industrial Commission a reconsideration of our present fee schedule. A committee recently has been appointed to take up this work and in due time we shall hear from them.

This, as you know, has been a legislative year, and numerous efforts have been made to introduce bills that would very definitely affect the practice of medicine in our state. Our Legislative Committee, composed of Drs. Haywood, McElwee, and Whitaker, with which I have been privileged to be in close contact, has handled every situation with wisdom and success.

The study of our state mental institutions has occupied a conspicuous place in the minds of our people and in the press. Every effort was made to have the Central Governing Board for all mental institutions so constituted as to allow the Medical Society of the State of North Carolina to nominate certain members of this board for the Governor's approval, as is now done with our State Board of Health. It has been the feeling of many that the organized medical profession has had neither responsibility nor authority in so far as the care and treatment of the mentally sick are concerned. The bill for the creation of such a Central Board, as passed by the recent legislature, however, provides that all members shall be appointed by the Governor. Much can be done for these incarcerated and most unfortunate individuals, and this is a matter with which our profession should be intensely concerned and in which it should take an active interest.

Efforts have continued throughout the year to effect an amalgamation of the insurance associations in our state which offer hospital and professional service and which are approved by this Society. There is only one organization that is sponsored by our Society. If possible, these associations should be combined into one organization which should have not only the sponsorship of the Medical Society, but the enthusiastic support of every hospital and physician in our state. This will afford the most effective means of offering a comprehensive medical service to our people and will do more than anything else to lessen the supposed necessity for federal intervention in the practice of medicine.

The National Physicians' Committee continues its excellent work. Its officers and directors are recognized and safe leaders in our profession and it is, therefore, recommended that this House of Delegates give it the official approval of our Society.

Last year this House of Delegates voted to refund dues for the year to those who had gone into the service of the armed forces and not to charge dues to those in uniform for the duration of the present emergency. They are to continue on our roll of active members and continue to receive the **Journal.** The number of our members who are in

the service of our country is indeed significant. This means that our treasury is not only deprived of their dues, but must bear the expense of keeping the **Journal** in their hands. Our organization wishes that it could do even more than this for our members who have "stepped out in front", but in order to make a continuation of even this much possible, it is advisable that we "take up the slack" and increase our state dues from $8 to $10 yearly. This is requested by our secretary-treasurer and such a recommendation is hereby made to this House of Delegates.

In order for any member of a legislative body to be fully effective, to exert his proper influence, it is desirable that he not only be familiar with the rules of legislative procedure, but that he know and become known by his legislative colleagues. For us often to elect new delegates to the American Medical Association is not conducive to meeting the requirements of prestige. If we would have our influence felt, if the organized medical profession of North Carolina wishes to make its thoughts and desires a real part of the national medical program, it would be well for us to consider sending yearly the same individuals to represent us in this national assembly. It is suggested that we do not elect our delegates to the American Medical Association with the thought of honorary temporary service, but that we elect them with the thought of being able to represent us to the successful accomplishment of our aims. We are entitled to three delegates. Would it not be wise for one of these to be our secretary? He should be in a position to serve us well.

It is recommended that our secretary be named a delegate **ex-officio.** According to the by-laws of the American Medical Association, however, he will have to be re-elected every two years.

The Executive Committe of the North Carolina Public Health Association has voted to have its annual meeting independently of ours. The Health Officers' Section of the North Carolina Public Health Association is meeting in this hotel simultaneously with us this afternoon. This is a very happy solution. It prevents overcrowding of hotel facilities and yet allows the physicians engaged in public health work to retain their intimate and desirable association with their State Medical Society.

Our **Journal** continues to fill an important place in our professional life. Its scientific articles are excellent and its editorial comment consistently leads the way to better and greater things. I would like to take this opportunity to express to its editor, Dr. Wingate Johnson, the official thanks and appreciation of our Society for the outstanding service he is rendering the profession of our state.

May a change in the format of our **Journal** be suggested? It is recommended that the House of Delegates request the Editorial Board to place the "Contents" on the cover. This would make the **Journal** more attractive, make its contents more accessible, and make available an additional page for advertising income.

It seems to many members of our State Society that we should have a full-time secretary. Such an opinion can not be taken as a reflection on our previous secretaries or on our good friend, our present secretary—on the kind of men they were or on the type and fullness of service they gave. As for our present secretary, Dr. McMillan, I personally do not understand how it is humanly possible for him to conduct his large and successful private practice and, at the same time, give himself so wholeheartedly to the many duties of this office; how he finds it possible to look after the general welfare of our state organization, attend to the innumerable details and always be on hand whenever his presence is needed. And because it would be extremely difficult, if not impossible, to fill his office when he retires with anyone on a part-time basis nearly so efficient, it behooves us to entertain the idea of making this a full-time position.

This suggestion is made realizing that in these times it may be impossible to find the suitable and qualified person—but realizing, also, that in the immediate future, probably more than in any time during the history of our country, organized medicine (the private practice of medicine) must remain cohesive and organized and must keep itself in a position to inform the public, to remind them that with their present system of medical practice they are securing the best the world has to offer.

Under our present set-up, the secretary of our State Medical Society is also business manager of the **North Carolina Medical Journal.** Add to this the secretaryship of the State Board of Medical Examiners, and we will have a collection of closely related duties which a full-time secretary should ably discharge, and we will have the means of paying a salary that will attract a person of recognized ability, such as we now have in the person of our present secretary.

Our government has let it be known that it intends to effect some alteration in the practice of medicine. These changes are now being brought about and at an accelerated pace. For us to remain indifferent and complacent will not be good for us or for the people we serve. For us to remain antagonistic and uncooperative will mean that these changes will materialize without our guiding help, and in a way that will not be best for our country.

It is, therefore, recommended to the House of Delegates:

(1) That we take official cognizance of this effort to alter the practice of medicine.

(2) That we recognize it as our duty to assist in guiding any changes that seem wise and needed.

(3) That our delegates to the American Medical Association be informed that it is the wish of this Society to support any effort by organized medicine to make available in our national capital, at all times, intelligent, courageous, courteous and authorized representatives of American Medicine, to the end that these authorized representatives offer counsel and provide accurate information to those in whom constitutional authority is vested.

Such guiding cooperation should make possible any wise and necessary expansion of medical service and at the same time maintain the present high standards of efficiency to which American Medicine has risen.

Finally may I express to the various committees and their chairmen my sincere appreciation for their loyalty, advice, and cooperation. Without their help it would have been impossible to carry on through the year. Especially would I like to take this opportunity to express my gratitude and admiration for our able and efficient secretary, my friend, Dr. Roscoe McMillan.

Secretary-Treasurer McMillan: Mr. Chairman, I move you, sir, that you appoint a committee of three to study the address which our able and distinguished president has made to us this afternoon, as well as the address which he is to make tomorrow morning, and to report at the second meeting of the House of Delegates on Wednesday afternoon.

. . . This motion was duly seconded and carried.

Vice President Coleman: On that committee I should like to name Dr. Joseph J. Combs, of Raleigh, Dr. J. A. Elliott, of Charlotte, and Dr. Ross S. McElwee, of Statesville.

. . . Vice President Coleman then retired, and President Cobb resumed the chair.

President Cobb: We will now have the report of the Secretary-Treasurer, Dr. McMillan.

Secretary-Treasurer McMillan: Gentlemen, you must take with a grain of salt what our distinguished President said with regard to the secretary-treasurer. I merely wish to express my appreciation for the privilege of serving you during the year just ended. I am not unmindful of the honor nor am I ungrateful for the opportunity.

Report of the Secretary-Treasurer

To the members of the House of Delegates of the Medical Society of the State of North Carolina, I respectfully submit the following report:

The House of Delegates at the 1942 meeting in Charlotte, upon my recommendation, changed the date of the annual audit to April 30 of each year instead of December 31. After careful consideration, I found this change to be impracticable; therefore, the audit for 1942 was made as of December 31. It is supplemented by my report to May 1, 1943. The auditor's report is attached.

Membership — The official membership, as of December 31, 1942, including the names of 350 honorary fellows and 1571 active fellows, was 1921. This means, of course, that the year 1942 closed with the largest membership in the history of the Society, or an increase of 124 members over December 31, 1941. As of May 8, 1943, we have 362 honorary fellows and 1426 active fellows, making a total membership of 1788 fellows, including 374 fellows in service and 13 new members. This is an increase of 147 members over the number on the same date in 1942.

Of the one hundred counties in the state, seventy-eight are organized into sixty-six county societies. According to the Seventeenth Edition of the A.M.A. Directory, there are 2871 physicians in the state, including both white and Negro physicians. Thus about 66⅔ per cent of all the physicians in the state are affiliated with the State Medical Society.

The House of Delegates of the A.M.A. makes a reapportionment of delegates every three years. For the years 1941-1942-1943, we have been entitled to three delegates from our society. This is the year another reapportionment is to be made. I hope our membership will continue to grow, for I feel that solidarity of the profession is particularly necessary in times like these. I say to you what I expect to say to the officers of the county societies at the breakfast meeting tomorrow morning: "I hope all of you will go back to your communities and make a determined effort to induce your fellow physicians who have been lax in their interest toward organized medicine to renew their affiliation with the 66⅔ per cent of all physicians in the state who make up the Medical Society." Your support along this line will be deeply appreciated.

During the year the deaths of 62 physicians were reported to the office of the Secretary. Of this number 37 were or had been affiliated with the Medical Society.

Finances — As will be seen from the auditor's report, our finances are sound. We have lived within our budget.

The House of Delegates at the 1942 session voted to waive the dues of all fellows with the armed forces of our country. In order to do this it was necessary for your Secretary to refund the dues of 263 members, or $2,104.00. The dues of 105 fellows in service were merely credited; that is $840.00, making the total loss of revenue from this source $2,944.00.

Receipts for 1942 were estimated at $15,785.00. Actually $18,405.97 was collected. The estimate of expenditures for 1942 was $15,785.00. Actually the total expenditures were $15,448.23. Thus the excess of receipts over expenditures was $2,956.74. As of December 31, 1942, our total assets were $17,253.87, as follows:

Cash—The Scottish Bank. Red Springs, N. C.		
Checking Account	$ 2,652.07	
Savings Account	1,537.80	$ 5,189.87
Investment in U. S. Defense Bonds (Series F)		12,064.00
Total		$17,253.87

Since the above date, we have converted the entire savings account and $3,963.00 from the checking account into Series G Defense Bonds. The Medical Society now has Defense Bonds the total value of which is $19,100.00. The balance in our checking account as of May 1, 1943, is $7,478.87.

While we have $19,100.00 in our—call it Sinking Fund, Reserve or Savings—I feel that a fair appraisal of our potential needs demands a reserve of at least $25,000.00 as our first goal. When this is reached, its proven value should inspire us to set a second goal, such as an endowment of some kind. If it is shown that our organization has a definite vision, a definite aim, a usable plan, I have faith that funds so established would, in themselves, attract from our membership gifts of money. Since the waiving of dues for fellows in service and the fact that very few, if any, younger graduates will be locating in the state until the present world conflict is over have curtailed the growth of this reserve fund, I suggest, along with our president, that our annual dues be raised from $8.00 to $10.00.

Industrial Health — Progress in this field has been very rapid. Here is an activity which we should study very carefully.

Medical Meetings — I recommend the continuation of county, district and state meetings with greater emphasis than ever. We cannot afford to stop medical progress nor can we afford to stop the interchange of medical views.

The Journal — In spite of increased cost of printing and loss of revenue due to waiving dues of fellows in military service, there is an increase of $429.24 for 1942 over 1941 in the excess of receipts over expenditures.

A detailed statement of income and expenditures for the **Journal** is as follows:

January 1, 1942 to January 1, 1943		
Receipts:		
Society Appropriation	$ 7,400.00	
Advertising, etc.	5,751.17	
Total	$13,151.17	$13,151.17
Expenditures:		
Editor's Salary	$ 1,200.00	
Asst. Editor's Salary	900.00	
Rent	300.00	
Printing of Journal	5,754.34	
Total	$ 8,154.34	$ 8,154.34
Excess of Receipts over Expenditures		$ 4,996.83

I strongly recommend that more news items be sent in for publication. Remember it is your **Journal**; therefore you should feel free to make use of its columns.

Incidentally, every effort is being made to send the **Journal** to fellows in service at their military addresses instead of to their home addresses, but it is extremely difficult to keep up with them because of the frequent movement of military forces.

State Society Service — The secretary's office of the State Society exists to serve every committee

and every member. It is your office and, although our record is not perfect, we do make an effort to answer every request. We should like this office to serve as a clearing house and we hope every physician in North Carolina will feel that he has every right to call upon us for help if he needs it.

Respectfully submitted,
Roscoe D. McMillan, M.D.,
Secretary-Treasurer

President Cobb: Thank you, Dr. McMillan, for this very interesting and very full report.

Gentlemen, you have heard the report of the secretary-treasurer. What will you do with it?

. . . It was moved and seconded that the report be accepted. The motion was carried.

President Cobb: We now proceed to the reports of the councilors and shall first hear from Dr. H. D. Walker, councilor for the First District. Dr. Walker.

Dr. H. D. Walker (Elizabeth City):

Report of Councilor for the First District

Mr. President and gentlemen: Nothing of significance has happened in the First District. Usually we have four meetings during the year, but last year we had only three. There is nothing of particular interest to report.

Second District—No report.

Third District—No report.

Dr. George W. Mitchell (Wilson):

Report of Councilor for the Fourth District

There is nothing special to report from our district, Mr. President. Our affairs are running smoothly and there is no disagreement or trouble in the district that I can find.

We have not had as many meetings as I should have liked to have. There has been a little confusion as to whether doctors can use their "C" cards to go to district meetings, and we have tried to get that straightened out. I think we should continue to hold our district meetings at regular times, as in the past. We have quarterly meetings in the Fourth District, and I think we should endeavor to hold those regularly and as puctually as possible and at the times we have been accustomed to holding them.

Fifth District—No report.

Dr. George L. Carrington (Burlington):

Report of Councilor for Sixth District

There has been a little difference of opinion as to the advisability of holding district meetings, and for that reason the number of meetings has been cut down. The rationing board in our district felt that the number of such meetings should be reduced.

Under the war conditions and in the absence of a particular necessity, the Sixth District councilor did not think it in order to attempt to visit the various component societies during the past year, and consequently returned to the secretary his allowance for travel expenses.

There was one malpractice suit in the district during the year that came to his attention. This suit was dismissed by the presiding judge. The general condition of the district appears to be good, despite the shortage of doctors.

Dr. Robert H. Crawford (Rutherfordton):

Report of Councilor for the Seventh District

Mr. President, I have nothing in particular to report for the Seventh District. We had a good meeting at Monroe, with some interesting papers. The Thermal Belt Society, consisting of four counties, decided to discontinue its meetings for the duration. Otherwise things are running smoothly.

Eighth District—No report.

Dr. I. E. Shafer (Salisbury):

Report of Councilor for the Ninth District

At a meeting of the Officers of the Ninth District Medical Society last August, it was decided not to have the annual meeting, which was scheduled to be held the last Thursday in September at Lenoir. We were of the unanimous opinion that this meeting should be postponed until 1943. The Ninth District is therefore planning the annual meeting this year for September 23 at Lenoir.

Officers: President, Dr. S. A. Rhyne, Statesville; Vice President, Dr. Douglas Hamer, Lenoir; Acting Secretary, Dr. J. W. Davis, Statesville, since Dr. Holbrook is in military service.

We hope to have a good meeting in the fall with a large attendance—provided gas rationing does not interfere.

All doctors of the Ninth District are working very hard and carrying heavy burdens, owing to the shortage of doctors.

There has been no unethical practice in the Ninth District that has been called to my attention.

President Cobb: Thank you, Dr. Shafer.

May we now hear from the Tenth District, Dr. A. C. McCall, Councilor.

Dr. B. O. Edwards (Asheville): Mr. President, Dr. McCall is unable to be here. I just want to say that things are moving along as usual with us. We have had, until this last year, two meetings a year in the Tenth District; but we voted last fall to have only one a year until the war is over.

There have been a great many men called from the Tenth District into the armed forces. Buncombe County alone has sent thirty-seven, including one colored physician. It is my opinion, however, that the people in the Tenth District are receiving adequate medical service.

President Cobb: Thank you, Dr. Edwards.

The next business is the report of the Delegates to the American Medical Association. The Delegates are Dr. W. T. Rainey, Fayetteville, Dr. Ross S. McElwee, Statesville, and Dr. W. C. Davison, Durham.

Dr. Ross S. McElwee (Statesville):

Report of Delegates to American Medical Association

The Ninety-Third Annual Session of the American Medical Association was held in Atlantic City, N. J. from June 8 to 12, 1942. This meeting was quite well attended, with a registration of more than eight thousand, and our state was quite well represented, with nearly one hundred doctors.

Those of you who have attended meetings in Atlantic City know it to be one of the most pleasant and convenient cities in the country to hold such meetings. The hotels provide all that could be asked for in the way of food and accommodations. The tremendous auditorium, covering about seven acres, is the largest in the country and under this one roof there is plenty of space for the various scientific sections, the scientific exhibits and technical displays.

The scientific exhibit was on the lower floor and from this floor there were numerous special assembly halls for lectures and demonstrations. Many of these demonstrations, especially the one on infantile paralysis, were crowded practically all the time. It can be truly said that a visit to these exhibits and lectures is a wonderful way to keep up with the latest in medicine and surgery.

One of the outstanding features, and one of especial interest to those of us from North Carolina, was the installation of our own Brigadier General Fred W. Rankin as president. He acquitted himself

with honor and we should be proud of him. His presidential address was excellent.

There were many social features and, of course, the outstanding one was the President's reception and ball held at the Traymore Hotel, Thursday, June 11. There was a special dinner given by the Atlantic County Medical Society to the members of the House of Delegates. It was at this dinner that Paul V. McNutt was the guest speaker. His speech was not well received by most of the delegates, who thought it was rather drastic and not in very good taste, in view of the fact that the medical fraternity was doing its part so well.

The Silver Medal was awarded to Drs. Deryl Hart and Samuel Upchurch, Duke University School of Medicine and Duke Hospital, for the exhibit on Air Disinfection with Bactericidal Radiant Energy. Dr. Ludvig Hektoen was awarded the Distinguished Service Medal of the A.M.A., which is considered the highest gift of this association.

The reports of the several committees were presented and practically all adopted with a few minor amendments. There was no endorsement of the program of the Farm Security Administration as regards medical care of its clients. This was carried over to another year for further study. Of course, if this agency is discontinued the discussion will end.

Another Southern physician, Dr. James E. Paullin, an outstanding internist from Atlanta, was unanimously elected President to succeed Dr. Rankin. The Treasurer, Dr. Herman Kretschmer, was elected to succeed himself, and also Dr. Olin West of Chicago, Dr. H. H. Shoulders of Nashville, Tenn., and Dr. R. W. Fouts of Omaha, Neb. were elected to succeed themselves. Dr. William J. Carrington of Atlantic City was elected vice president.

The scientific and technical exhibits were eliminated for 1943 but there will be a meeting of the House of Delegates in Chicago, June 7.

The Woman's Auxiliary was well attended and I think this group enjoyed the meeting immensely. There was quite a large number of Pan-American delegates, many of whom entered into the discussions.

President Cobb: Thank you, Dr. McElwee.

Gentlemen, you have heard the report. Will you accept it?

. . . It was moved that the report be accepted. The motion was seconded and carried.

President Cobb: The motion to accept the report is carried, and it is so ordered.

I should like to take this opportunity to congratulate Dr. Deryl Hart and his associates upon being awarded the Silver Medal of the American Medical Association—an award which reflects honor not only upon them but upon the Medical Society of the State of North Carolina as a whole.

Next we shall have the report of the Delegates to the Medical Society of Virginia. The delegates are Dr. Moir S. Martin, Dr. Newsom P. Battle, Dr. S. M. Bittinger, Dr. B. E. Rhudy, and Dr. John C. Tayloe.

. . . No report.

President Cobb: Next is the report of the Delegates to the South Carolina Medical Association. Dr. W. D. James, Sr., Dr. T. D. Sparrow, and Dr. D. M. McIntosh.

Dr. W. D. James, Sr. (Hamlet): Mr. President and gentlemen: On account of the government's regulations in restricting travel none of the delegates to the South Carolina Medical Association attended its meeting.

President Cobb: We shall next have the report of the Board of Medical Examiners, Dr. W. D. James, Sr., secretary.

Dr. W. D. James, Sr. (Hamlet):

Report of the Board of Medical Examiners

The Board of Medical Examiners of the State of North Carolina met in Raleigh, June 15-19, 1942, for licensing physicians in North Carolina. All members of the Board were present. Seventy-eight doctors were licensed by examination and forty by reciprocity. All are graduates of Grade A medical schools.

The Board of Medical Examiners met in Durham, December 9, 1942, for issuing license by reciprocity. All members of the Board were present. Twenty-two doctors were licensed by reciprocity.

President Cobb: Thank you, Dr. James.

Gentlemen, what will you do with the report of Dr. James for the Board of Medical Examiners?

. . . It was moved and seconded that the report be accepted. The motion was carried.

President Cobb: The motion is carried, and it is so ordered.

Dr. W. H. Smith (Goldsboro): Mr. President, before we proceed further with the program I should like to bring this matter to the attention of the House. I have learned within the last two hours that Dr. F. Webb Griffith, a former president of the State Society, was taken sick a few days ago. It would be a nice thing, I think, to send him a telegram expressing our regret and sympathy.

President Cobb: Do you wish to make a motion to that effect?

Dr. Smith: I move that the secretary send a telegram to Dr. F. Webb Griffith, of Asheville, expressing the sympathy of this House of Delegates and this Society in his illness and our anxiety about his condition and our hopes for his speedy recovery.

. . . The motion was seconded and was carried.

President Cobb: The secretary will send the telegram.

The next item of business is the report of the Board of Nurse Examiners. Is Dr. T. C. Johnson here?

. . . No response.

President Cobb: We will go on to the reports of our committees. First we shall have the report of the Advisory Committee to the Industrial Commission, of which Dr. Newsom P. Battle is Chairman.

Dr. Newsom P. Battle (Rocky Mount):

Report of the Medical Advisory Committee to the North Carolina Industrial Commission

During the year beginning May 1, 1942 and ending May 1, 1943, the Medical Advisory Committee to the Industrial Commission reviewed and acted upon 60 bills, 49 of which were appealed by doctors and 11 by hospitals. Of these bills 43 were increased and 17 were not increased. Of the 43 bills increased 16 were increased to the amount of the bill rendered and 27 were increased in part. The total amount of these bills as rendered to the Industrial Commission was $6,252.10. The Industrial Commission approved $3,355.68 and your Committee increased the $3,355.68 by $1,118.75, making a total paid to physicians and hospitals of $4,557.43. This shows an increase of $19.80 per bill reviewed and acted upon, or $27.64 increase per bill increased.

The foregoing figures show that the Special Advisory Committee made an increase of 35.4 per cent over that approved by the Industrial Commission.

The following is an analysis of all medical and hospital bills submitted to and acted upon by the Industrial Commission during the period May 1, 1942 to March 31, 1943:

Type Submitted	Amount Submitted	Amount Approved	Amount Reduction	Per cent Reduction	Number Submitted	Number Reduced	Per cent of bill reduced
Medical	$609,602.24	$561,639.16	$47,963.08	7.9%	59,325	5,932	10.0%
Hospital	224,816.43	210,145.89	14,670.54	6.5%	7,527	1,933	25.7%
Total	$834,418.67	$771,785.05	$62,633.62	7.5%	66,852	7,865	11.8%

Number of Bills Reduced Due to Disregard of Fixed Scheduled Fees

Type Submitted	Number Submitted	Number Reduced	Hospitals	Doctors	Total	% Reduction Including All Reduced	% Reduction Excluding All Flats
Medical	59,325	5,932		1,473		10.0%	7.5%
Hospital	7,527	1,933	696			25.7%	16.4%
Total	66,852	7,865			2,169	11.8%	8.5%

From the foregoing figures you will note there has been a reduction of $.93 per bill of all bills received or a reduction of $7.96 per bill of the bills reduced, or a reduction of $.81 per medical bill received and a reduction of $8.09 per medical bill reduced, or a reduction of $1.95 per hospital bill received and a reduction of $7.60 per hospital bill reduced.

The Industrial Commission explains the foregoing analysis as follows: "In a great many instances the Industrial Commission has been compelled to reduce bills because of disregard of the Rules and Regulations of the Fee Schedule and disregard of the flat rate fee set forth therein. The following tabulation will show what the percentage of reduction was including all reduced bills as to what the percentage would have been had the Fee Schedule been followed in its entirety. As you know, the fees fixed in the Fee Schedule were approved by the Committee of the State Medical Society, Dental Society and State Hospital Association."

At one of its meetings your Committee met with the President of our Society, Dr. Donnell Cobb, and with Dr. J. A. Elliott, Chairman of the Committee appointed to confer with Governor Broughton in regard to the cutting of fees by the Industrial Commission, and with the entire Industrial Commission. At this meeting a free discussion was held regarding the policies of the profession and of the Industrial Commission. During the discussion it was brought out by the members of the profession that it was felt that the doctors should be given the benefit of the doubt in cases where the charges were questionable. At the conclusion of this meeting, it was felt that both the members of the profession and the Industrial Commission were desirous of cooperating with each other in the hope that both sides might be mutually benefited. At the other meetings held during the year one or more members of the Medical Committee sat with the Commission and gave it the benefit of the Committee's opinion on various matters. The Commission has been courteous and cooperative to your Committee and has accepted the suggestions made regarding the increasing of bills.

Certain conditions, for which the fee schedule has no provision, are not infrequently arising. It is felt that some of our difficulties might be done away with, if the schedule were to be revised by physicians familiar with and practicing industrial medicine and surgery. A committee acceptable to both the Commission and the Medical Society has been appointed by our president to study and make suggestions for a revision of the present fee schedule.

In conclusion, your attention is called to the fact that your Committee acts only in an advisory capacity. The doctors are urged to familiarize themselves with the fee schedule and with the regulations as set down in the "Medical and Hospital Fee Schedule in Connection with the Administration of the North Carolina Workmen's Compensation Act," and to give the Advisory Committee the opportunity of reviewing the cases when it is thought that the Industrial Commission is in error.

Respectfully submitted,

N. P. Battle, Chairman
O. L. Miller, M.D.
Russell O. Lyday, M.D.

President Cobb: Thank you, Dr. Battle.

Gentlemen, what will you do with Dr. Battle's report?

Dr. Ross S. McElwee: I move that it be accepted.

This motion was seconded and was carried.

President Cobb: The motion is carried, and it is so ordered.

The next item of business is the report of the Committee to Study Industrial Fees. Dr. Joseph A. Elliott is Chairman.

Dr. J. A. Elliott (Charlotte):

Report of Committee to Study Industrial Fees

Owing to war conditions and long distances that would have to be traveled we have not been able to get all of the members of the committee on industrial fees together during the year. I have had the opportunity of talking with some of them and have written to all of them relative to our duties. Each member was asked to study the fee situation in his district and to urge those whose bills were unjustly cut to submit such bills for review by the medical advisory committee. Only a few have taken advantage of this advice. Most of those, however, who have submitted their bills for review have had them either restored or substantially increased. I would like to take this opportunity to commend the advisory committee for the splendid work they are doing. I feel sure that the method of having a resume of all bills to be reviewed in the hands of each committeeman for a week or more before their regular meeting has resulted in a more thorough study of the cases and in increased payments.

At the invitation of the chairman of the medical advisory committee I attended a meeting of his group and of the Industrial Commissioners in Raleigh during September. A full discussion of fees was entered into. The Commissioners expressed a willingness to try to adjust the differences between themselves and the doctors. I am of the opinion that this has been done in some instances, but I am sure there are still many unsatisfactory fees being paid the physicians which should and could be remedied.

Your chairman and the chairman of the advisory committee requested the Industrial Commission to meet with a special committee to be appointed by our president to revise the present fee schedule so that it will more nearly conform to present-day cost of medical care. The Commissioners agreed to this request. This committee has been appointed and I understand that they are functioning. It is our

hope that a more comprehensive fee schedule will be adopted, one that meets the present cost of medical care, and one that the doctor may follow with the assurance that his bills will be approved.

Again let me urge you to follow the fee schedule when submitting your bills. Then if they are cut, ask for a review by the advisory committee. In this way you will not only receive better fees but you will furnish data upon which your committee can justify our position in asking for higher fees.

Joseph A. Elliott, Chairman.

President Cobb: Thank you, Dr. Elliott.

Do I hear a motion that Dr. Elliott's report be accepted?

. . . It was moved and seconded that the report be accepted. The motion was carried.

President Cobb: The report is accepted.

The special committee to which Dr. Elliott referred is composed of Dr. Harry Winkler, of Charlotte, Dr. J. F. Robertson, of Wilmington, and Dr. Glenn R. Frye, of Hickory.

We will now have the report of the Advisory Committee on Maternity and Infancy for the Children's Bureau, of which Dr. A. S. Root, of Raleigh, is Chairman.

. . . No report.

President Cobb: The next report is that of the Advisory Committee to the Woman's Auxiliary to the Medical Society, Dr. P. P. McCain, Chairman.

. . . No report.

President Cobb: We will proceed to the report of the Cancer Committee. Dr. Ivey.

Dr. H. B. Ivey (Goldsboro):

Report of the Cancer Committee

The Committee has less activity to report this year than in previous years. It has been confronted with many difficulties due to the national emergency.

This year we did not ask the cooperation of the physicians because we knew you were having to do your own job and probably that of your neighbor during his absence in service. There has also been an unusual increase in medical work along with the extra duties connected with the draft examinations, health examinations, etc. This situation left most of the physicians so encumbered that they were loath to take on extra duties of any kind. We hesitated to ask you to do anything not directly connected with the prosecution of the war. Therefore, no lectures have been delivered by the medical profession to lay groups.

The colleges have had their own problems connected with the war work, with disruption of the student bodies and establishing training corps of various kinds; therefore, they have not had time for lectures or extra schedules. One college head summed up their feelings by saying that he did not believe the students would be interested unless the work pertained to the war.

High school personnel have been very much overworked with registration for rationing and the many drives and other things demanded of them. and they have not had the time for cancer work.

The Women's Field Army has been carrying on their educational campaign through their organization in the state. This is headed by Mrs. George Marshall of Mt. Airy, State Commander. Dr. Ivan Proctor of Raleigh, North Carolina, is the Field Army Educational Director.

On January 3 the Committee met in Raleigh with Dr. Proctor and Mrs. Marshall present. At this meeting it was brought to the attention of the Committee that there is developing a demand among lay groups in the state for some method of treating indigent cancer patients in North Carolina. There is a feeling in these lay organizations that we are backward in furnishing treatment for these cases. It was brought to our attention that many states of the union are furnishing this treatment from state funds which are administered either by the State Health Department or by a special Cancer Commission. The following data were given to us to show the activities in some of the other states:

Approved Cancer Clinics (All Clinics met minimum standard of the American College of Surgeons)

Connecticut	22	
Georgia	11	
Illinois	6	
Iowa	6	
Massachusetts	34	
Missouri	1	Large State Hospital at Columbia
New Hampshire	14	
Vermont	2	

State Appropriations for Cancer Work

Connecticut	$ 50,000.00	To State Department of Health
Georgia	50,000.00	To State Department of Health
Illinois	35,000.00	To State Department of Health
Iowa	8,000.00	To State Department of Health
Massachusetts	50,000.00	To State Department of Health Additional appropriations $100,000.00 for equipment, $70,000.00 for radium, $100,000.00 care of radium
Missouri	500,000.00	By state for State Cancer Hospital (Bldg. fund)
	400,000.00	By P. W. A. for State Cancer Hospital (Bldg. fund). Necessary funds for maintenance appropriated by State Legislature
New Hampshire	50,000.00	To Cancer Commission consisting of Governor of the state and four others appointed by the Governor — one from State Board of Health, one from State Medical Society, two non-medical
Vermont	15,000.00	To Vermont State Cancer Commission composed of the Governor, Chairman of Cancer Committee of State Medical Society, and two members appointed by the Governor from four nominations made by the State Medcal Society, and one lay member appointed by the Governor. The State Commander of the Women's Field Army serves as Executive Secretary.

The following bill was presented to us for approval before being introduced into the legislature to be enacted into law for our state:

Cancer Law—An Act

"To promote the prevention and cure of cancer; to authorize the North Carolina Cancer Commission to establish a standard for the organization, equipment and conduct of cancer units or departments in general hospitals in this state and to conduct an educational campaign for cancer control; and to provide a plan for the care and treatment of indigent persons suffering from cancer; and to acquire such laboratories, hospitals, or other property, real or personal, by gift, purchase or otherwise, and as is necessary to carry out the purposes of this Act; to appropriate One Hundred Thousand ($100,000.00) Dollars annually to enable the North Carolina Cancer Commission to carry out the provisions of this Act; and for other purposes.

"**Section 1:** Be it enacted by the General Assembly of the State of North Carolina, and it is hereby enacted by authority of the same, that from and after the passage of this act it shall be the duty of the North Carolina Cancer Commission to formulate a plan for the care and treatment of indigent persons suffering from cancer, and to establish and designate standard requirements for the organization, equipment and conduct of cancer units or departments in general hospitals of this state. The North Carolina Cancer Commission shall consult with their Director and he with other experts or non-experts wherever located as the North Carolina Cancer Commission may deem proper with a view to carrying out the purposes of this Act, and with a view of establishing a minimum standard for the conduct and equipment of cancer units or departments in general hospitals in such parts or districts of the State as may, in the opinion of the North Carolina Cancer Commission, be deemed most advantageous to the public health.

"**Section 2.** Be it further enacted by the authority aforesaid that said North Carolina Cancer Commission of the State of North Carolina shall formulate and put into effect an educational plan for the purpose of preventing cancer throughout the State of North Carolina, and for the purpose of aiding in the early diagnosis of cancer, and for the purpose of informing hospitals and cancer patients of the proper treatment.

"**Section 3.** Be it further enacted by the authority aforesaid that said North Carolina Cancer Commission of the State of North Carolina is authorized and directed to make rules and regulations specifying to what extent and on what terms and conditions indigent cancer patients of this State may receive financial aid for the diagnosis and treatment of cancer in any hospital in this State approved by the North Carolina Cancer Commission. The North Carolina Cancer Commission is hereby authorized to furnish such aid to such indigent cancer patients of this State who are one year residents of this State, to the extent of, and within the appropriation, as the North Carolina Cancer Commission shall deem proper. The North Carolina Cancer Commission shall have the power in its discretion to administer such aid in any manner which in its judgment will afford the greater benefit to cancer patients throughout the State, and shall have the power, to the extent of and within the appropriation herein provided, or which may be hereafter provided, to acquire such laboratories, hospitals, or other property, either real or personal, by gift, purchase, devise, or otherwise, as the North Carolina Cancer Commission shall in its discretion deem advisable to afford proper treatment and care to patients in this State, and to carry out the intent and purpose of this Act.

"**Section 4.** That the sum of One Hundred Thousand ($100,000.00) Dollars, is appropriated annually for the purpose of this Act, but the same is to be paid out of the amounts appropriated to the North Carolina Cancer Commission by the General Appropriations Bill and the amount of $100,000.00 is to be paid out of that fund and no other.

"**Section 5.** The North Carolina Cancer Commission shall consist of three practicing physicians appointed by the president of the North Carolina Medical Society for a period of three years each, except the first appointment shall be one for a period of one year, one for two years, and one for three years. Two members shall be appointed by the Governor, one to be a physician, the other a layman. The secretary of the State Board of Health or his representative shall be a member of the Commission. The North Carolina State Commander of the Women's Field Army of the American Society for the Control of Cancer shall be a member. The president of the North Carolina Medical Society shall appoint the chairman of the Commission. The terms of office of the two members appointed by the Governer shall expire with his term of office.

"**Section 6.** Be it further enacted by the authority aforesaid that in case any section or any paragraph of any section of this Act shall be declared illegal or unconstitutional by the courts, the same shall not effect the provisions of this Act so declared to be illegal or unconstitutional.

"**Section 7.** Be it further enacted by the authority aforesaid that all laws and parts of laws in conflict with this Act are hereby repealed."

After due consideration was given to the above bill the Committee decided that it was such a radical departure from the present accepted practice in the state that it should be submitted to legally constituted representatives of the Medical Society who had the power to act and that their approval should be obtained before this measure was sponsored by the Medical Society. It was decided to submit this request to the Committee on Socialized Medicine, to the Legislative Committee and to the Executive Committee of the Society. This matter was discussed with the president, Dr. Donnell B. Cobb, and with some members of these committees. It was finally decided that the matter should be brought before the House of Delegates for final disposition.

We present this data to you for final decision.

Respectfully submitted,

H. B. Ivey, M.D., Chairman
C. C. Carpenter, M.D.
T. Leslie Lee, M.D.

Expenses of North Carolina Cancer Committee

Cash on Hand		$ 273.88
Telephone and Telegrams	$ 15.00	
Stamps and Stationery	10.00	
Traveling Expenses	15.00	
Secretarial Expense	25.00	
Stenographic Expense	10.00	
Intangible Tax	.27	
	$ 75.27	
Balance May, 1943		$ 198.61

President Cobb: Thank you, Dr. Ivey.

I know this matter has given the Cancer Committee a great deal of concern during the last year. As Dr. Ivey says, he and his committee lay it before you for your consideration.

Dr. J. F. Robertson (Wilmington): Mr. President, may I ask whether or not the committee or Dr. Ivey has made any recommendation in this matter?

President Cobb: Dr. Ivey?

Dr. Ivey: Dr. Robertson, we have not. We hesitated to do so because we realized that we were stepping directly into state medicine if that act were

passed. There is no mistake about that, and we did not feel we could take the responsibility of sponsoring or accepting this proposed act for the Society.

There is considerable feeling in lay organizations such as women's clubs and in these lay cancer organizations that we are not meeting the situation, and they are demanding that something more be done about the handling of indigent cancer patients.

There are many pitfalls in the thing. If the act were so written that politicians could not pass their friends in who are amply able to pay for treatment, we would recommend approving the act. As I said, this demand is becoming rather urgent.

Secretary-Treasurer McMillan: Mr. President, I move that this matter be referred to the Executive Committee, with power to act.

. . . Dr. McMillan's motion was seconded by Dr. C. F. Strosnider, Goldsboro.

President Cobb: Is there any discussion?

Dr. I. H. Manning (Chapel Hill): We have a very competent public health service in the state. Why could not this matter be put under them? Give them $100,000 and let Dr. Reynolds and his group handle it. Let them set up a special cancer department, if necessary. I think this is a movement toward decentralization of the health work, and I think that is unwise. I think the health work should all be under the State Board of Health. The overhead expenses would be reduced, and the people who need it would be given the benefit of the appropriation. The health officials have demonstrated that they are able to handle matters of this kind, and I think if an appropriation is given to them specifically for this purpose they will handle the work well.

Dr. Ivey: Dr. Manning, that suggestion was considered, but it puts the Health Department directly into the practice of medicine. We understood that the thought of the Society and of the House of Delegates was to turn it over to a separate commission. That was the only reason for establishing a separate commission.

President Cobb: It has been moved by Dr. McMillan and seconded by Dr. Strosnider that this matter be referred to the Executive Committee, with power to act. Those in favor say "Aye".

. . . The motion was carried.

President Cobb: We will now have the report of the Finance Committee, which will be presented by Dr. Coppridge.

Dr. W. M. Coppridge (Durham): Mr. President and gentlemen, I should like to state that I am making this report for Dr. Vance P. Peery, Chairman of the Finance Committee, who is not able to be present today. I heard just before entering the hall that he is prevented from being present by reason of the death of a brother.

Report of the Finance Committee

The audit of the secretary-treasurer's office was made by S. Preston Douglas, Lumberton. This report will be published in detail, and it is suggested that all members take the opportunity to acquaint themselves with the efficient and diligent management of the affairs of the secretary-treasurer's office by Dr. McMillan.

Several minor changes in the Budget have been suggested by the secretary-treasurer; to explain these we quote below a letter to the Finance Committee from Dr. McMillan.

"Enclosed is a copy of the proposed budget for 1943 and a copy of the Auditor's report for 1942. If you recall, at the last meeting of the House of Delegates, upon recommendation of the President, a motion was passed whereby the audit date was changed from December 31 of each year to May 1; however, the longer I work at this business of being Secretary-Treasurer the more I realize the impracticability of such a plan. I have, therefore, taken the liberty of proceeding with the audit as in previous years, that is, having the audit made as of December 31. I will explain this at the next meeting of the House of Delegates.

"You will note that I am also enclosing a sheet giving a comparison of estimated receipts and expenditures for 1942 and the actual receipts and expenditures for 1942 with the estimated receipts and expenditures for 1943. Under estimated current and back dues for 1943, because of the war conditions I have given as low a figure as I feel this item can possibly fall but I am hoping for the same good response along this line as we had in 1942 which would take us over this amount by quite a little sum.

"Now for Expenditures—you will notice that I am asking for $300.00 for the Legislative Committee the same as last year. The reason for this is that I was so new at the business when last year's budget was made up I failed to realize that I was asking for something which would not be used until 1943 therefore, this item remained intact during 1942 but has been used this year.

"As you know, the Executive Committee held no meeting in 1942 since all business transacted by the committee was done through the mail and I am hoping that the same procedure may be followed in 1943; nevertheless, I do feel that some allowance should be made to take care of any emergency meeting; hence the reduced figure for the Executive Committee.

"The estimated travel expense for this office has been reduced by $200.00. Judging from my past experience, the remaining amount, under ordinary circumstances, would be inadequate; however, due to various wartime regulations, etc., my traveling has been cut down considerably. The audit shows that I returned $100.00 of the amount allowed for travel in 1942 because of these conditions.

"You will notice that I have reduced the item 'Miscellaneous and Emergency' by $100.00. I feel that the amount stated will be adequate.

"Last, but by no means least important of all, under 'Clerical Assistance', I have raised the estimated amount from $1200.00 to $1500.00. You, of course, realize that the various demands of the emergency have added considerably to the correspondence and to the matter of keeping records in this office, thus necessitating quite a lot of over-time work for my secretary. Not until I assumed this office did I realize that it was almost an impossibility to secure a capable secretary for the salary allowed by the Medical Society. In fact, it has been necessary for me to supplement my secretary's salary from my own funds ever since I assumed office and I shall continue to do so for, particularly at this time when living expenses have increased so much, even $1500.00 is still inadequate to take care of the salary of a secretary who will measure up to the requirements of the Medical Society.

"I am quite sure that with the proposed budget, if approved, we will again be able to show a considerable excess of receipts over expenditures, probably as great as in 1942. Of course, you know that a secretary is to be elected for the Society this year but, whoever is elected, I feel that the proposed budget should be adequate."

Vance P. Peery, M.D., Chairman
W. M. Coppridge, M.D.
W. H. Sprunt, M.D.

Proposed Budget—1943

Receipts:		
Current and Back Dues	$10,900.00	
Advertising	5,000.00	
Other Sources	300.00	
Total	$16,200.00	
Expenditures:		
All Offices		
Except Secretary's:		
Stationery	$ 100.00	
Councilors' Travel Expenses	250.00	
President's Travel Expenses	400.00	
Executive Committee	300.00	
Legislative Committee	300.00	
Other Committees	600.00	
State Meeting Reporting	450.00	
A. M. A. Delegates	300.00	
Guest Speaker	100.00	
Total	$ 2,800.00	$ 2,800.00
Secretary's Office:		
Salary	$ 2,400.00	
Clerical Assistance	1,500.00	
Stationery and Stamps	165.00	
Rent	300.00	
Travel Expenses	400.00	
Auditing	35.00	
Misc. and Emergency (Telephone, Supplies, Etc.)	600.00	
Total	$ 5,400.00	5,400.00
North Carolina Medical Journal:		
Editor's Salary	$ 1,200.00	
Assist. Editor's Salary	900.00	
Rent	300.00	
Printing of Journal	5,600.00	
Total	$ 8,000.00	8,000.00
Total Expenditures for 1943		$16,200.00

	Estimated Receipts and Expenditures for 1942	*Actual Receipts and Expenditures for 1942*	*Under/Over*	*Estimated Receipts and Expenditures for 1943*	
Receipts:					
Current and Back Dues	$11,142.00	$12,617.00	$ 1,475.00	$10,900.00	
Advertising	4,600.00	5,751.17	1,151.17	5,000.00	
Interest	43.00	37.80	—5.20	.. .. ..	
Other Sources	.. ..	.. ..	.. .. ..	300.00	
Total	$15,785.00	$18,405.97	$ 2,620.97	$16,200.00	
Expenditures:					
All Offices Except Secretary's:					
Stationery	$ 100.00	$ 104.45	$ —4.45	$ 100.00	
Councilors' Travel Expense	250.00	225.00	25.00	250.00	
President's Travel Expense	400.00	400.00	.. .. ..	400.00	
Executive Committee	500.00	.. .. ..	500.00	300.00	
Legislative Committee	300.00	.. .. ..	300.00	300.00	
Other Committees	600.00	600.00	.. .. ..	600.00	
State Meeting Reporting	500.00	423.08	76.92	450.00	
A. M. A. Delegates	300.00	300.00	.. .. ..	300.00	
Guest Speaker	100.00	100.00	.. .. ..	100.00	
Other	.. .. ..	27.88	—27.88	.. .. ..	
Total	$ 3,050.00	$ 2,180.41	$ 869.59	$ 2,800.00	$ 2,800.00
Secretary's Office:					
Salary	$ 2,400.00	$ 2,400.00	.. .. ..	$ 2,400.00	
Clerical Assistance	1,200.00	1,200.00	.. .. ..	1,500.00	
Stationery	100.00	118.44	—18.44	.. .. ..	
Rent	300.00	300.00	.. .. ..	300.00	
Travel Expenses	600.00	500.00	100.00	400.00	
Auditing	35.00	34.95	.05	35.00	
Misc. and Emergency (Telephone, Supplies, Postage, Etc.)	700.00	560.09	139.01	600.00	
Stationery and Stamps	.. .. ..	.. .. ..	.. .. ..	165.00	
Total	$ 5,335.00	$ 5,113.48	$ 220.62	$ 5,400.00	$ 5,400.00
North Carolina Medical Journal:					
Editor's Salary	$ 1,200.00	$ 1,200.00	$	$ 1,200.00	
Assistant Editor's Salary	900.00	900.00	.. .. ..	900.00	
Rent	300.00	300.00	.. .. ..	300.00	
Printing of Journal	5,000.00	5,754.34	—754.34	5,600.00	
Total	$ 7,400.00	$ 8,154.34	$ —754.34	$ 8,000.00	$ 8,000.00
Total Estimated Expenditures for 1943					$16,200.00
Total Expenditures for 1942		$15,448.23			
Total Excess of Receipts Over Expenditures			$ 2,956.74		

Auditor's Report on the Medical Society of the State of North Carolina
January 1, 1942 to December 31, 1942
February 9, 1943

Chairman and Members of the Finance Committee
Medical Society of the State of North Carolina, Inc.
Red Springs, North Carolina
Gentlemen:

Pursuant to engagement, we have made an audit and examination of the Cash Receipt and Disbursement Records of Dr. Roscoe D. McMillan, Secretary-Treasurer of the Medical Society of the State of North Carolina, Inc., Red Springs, N. C., for the year ended at December 31, 1942. A report of such audit and examination, consisting of two Exhibits and three Schedules, enumerated as follows, is submitted herewith, and is subject to the comment contained herein:

Exhibit A Balance Sheet
Exhibit B Cash Receipts and Disbursements
Schedule 1 Reconciliation of Cash
Schedule 2 Investment in United States Defense Bonds
Schedule 3 Budget Comparison—Receipts and Expenditures

Scope of Audit

The scope of the audit consisted of a detailed examination of the Cash Book, which is used as the original record for entries of receipts and of disbursements, and also, all paid and cancelled bank checks were examined and paid invoices were test-checked in a manner which we deemed adequate. The Assets were verified to the extent set forth hereinafter.

Balance Sheet—Exhibit A

A Balance Sheet has been prepared, which is designated herein as Exhibit A, to show the Assets and Net Worth of the Medical Society at December 31, 1942. We did not find that there were any Liabilities of the Medical Society as at that date. This Balance Sheet has been divided into two sections. One section contains the Current Operating Fund, which shows an unencumbered and unappropriated balance of $17,253.87, and the other Fund has been designated as a Capital or Non-Operating Fund, and which contains the office equipment owned by the Medical Society at estimated values as at the close of the year. As there were no outstanding Liabilities, we have shown the Net Worth of the two Funds to be $17,253.87 and $1,201.66, respectively.

The cash in the Scottish Bank, Red Springs, N. C., was verified through a reconciliation of the balances as shown by the books of the Secretary-Treasurer of the Medical Society, with a statement which we obtained independently from the depository. This reconciliation is shown in detail in Schedule 1 of the report, and at December 31, 1942, the total amount, including checking and savings Accounts, was $5,189.87.

The investment in United States Defense Bonds has been shown in Schedule 2 of the report, the cost value of which was $12,064.00. The bonds were examined and are shown in detail in Schedule 2.

The office equipment, which has been shown in detail in the Balance Sheet under the heading of Capital or Non-Operating Fund, has been set up from an estimate which we made of the value of the furniture and fixtures in the office of Dr. McMillan at the date of the audit. We did not find that this equipment had been previously carried in the records of the Medical Society, and therefore, the original cost values were not available. As there were no Liabilities outstanding against the furniture and fixtures, we have shown the entire amount as Net Worth of the Medical Society under an appropriate heading in the Balance Sheet.

Cash Receipts and Disbursements—Exhibit B

A statement showing in detail the Cash Receipts and Disbursements of funds passing through the hands of Dr. Roscoe McMillan, Secretary-Treasurer, during the year under review, has been shown in Exhibit B, which may be summarized as follows:

Cash Balance at January 1, 1942		$ 11,474.47
Cash Receipts during Year		18,405.97
Total Cash Available		$ 29,880.44
Less—Disbursements for Current Year Operations	$15,279.91	
Other Disbursements—Investments, Capital Expenditures and Refunds	9,410.66	24,690.57
Cash Balance at December 31, 1942		$ 5,189.87

Budget Comparison—Receipts and Expenditures Schedule 3

A statement showing a comparison of the Cash Receipts and Disbursements for the current year operations of the Medical Society has been shown in Schedule 3. By examination of this statement, it will be seen that after making a deduction for refunds of membership dues, due largely to members being in the Armed Forces of the United States, that there exists an operating surplus of $884.06, which amount has been added to the unexpended balance of the Current Fund, as shown in the Net Worth section of the Balance Sheet.

General Comment

We are glad to inform you that the financial records examined by us of the Secretary-Treasurer, were found to have been well kept and in an excellent condition.

In conclusion, we wish to express our appreciation for the courtesies and cooperation shown us during the course of the audit.

Respectfully submitted,
S. Preston Douglas
Certified Public Accountant

EXHIBIT A BALANCE SHEET

ASSETS

CURRENT OPERATING FUND			
Cash: (Schedule 1)			
The Scottish Bank Red Springs, N. C.			
Checking Account	$ 3,652.07		
Savings Account	1,537.80		$ 5,189.87
Investment in U. S. Defense Bonds (Schedule 2)			12,064.00
TOTAL ASSETS—CURRENT OPERATING FUND			$ 17,253.87
CAPITAL OR NON-OPERATING FUND			
Underwood Typewriter	$	115.00	
Wood File Case—Letter Size		21.66	
Typewriter Desk		25.00	
Steel Office Safe		150.00	
Dictaphone Complete (Three Units)		300.00	
Burroughs Electric Adding Machine		200.00	
Checkwriter (Paymaster)		40.00	
Electric Mimeograph Machine		300.00	
Steel File Case Letter Size		20.00	
Four Steel Card Files		20.00	
Office Chair		10.00	1,201.66
TOTAL ASSETS			$ 18,455.53

LIABILITIES AND NET WORTH

LIABILITIES			$ — — —
NET WORTH			
Current Operating Fund—Unencumbered Balance:			
Balance January 1, 1942	$ 16,506.47		
Plus Net Increase during Year Per Budget Comparison Statement (Schedule 3)	884.06		
	$ 17,390.53		
Less—Expenditures made for Capital Additions		136.66	17,253.87

Capital Fund—Non-Operating:		
Balance at January 1, 1942		$ ———
Plus—Purchases during Year with Current Funds	136.66	
Assets Set up at Appraised Value	1,065.00	1,201.66
TOTAL LIABILITIES AND NET WORTH		$ 18,455.53

EXHIBIT B—CASH RECEIPTS AND DISBURSEMENTS

RECEIPTS

CASH RECEIPTS DURING YEAR		
Membership Dues		
Current and Prior Years		$ 12,617.00
Medical Journal—		
Advertising and Subscriptions		5,751.17
Interest from Savings Account		37.80
TOTAL CASH RECEIPTS DURING YEAR		$ 18,405.97
CASH BALANCE AT JANUARY 1, 1942—IN BANKS		11,474.47
TOTAL CASH AVAILABLE DURING YEAR		$ 29,880.44

DISBURSEMENTS

CASH DISBURSEMENTS DURING YEAR		
Secretary's Office:		
Salary of Secretary	$ 2,400.00	
Salary of Clerical Assistant	1,200.00	
Rent	300.00	
Travel	500.00	
Stationery and Postage	209.37	
Telephone, Telegraph, Printing and Miscellaneous	264.84	
Auditing	34.95	
Federal Old-Age Benefit Tax	36.00	$ 4,945.16
North Carolina Medical Journal:		
Salary of Editor	$ 1,200.00	
Salary of Assistant Editor	900.00	
Rent	300.00	
Printing and Mailing Medical Journal	5,754.34	8,154.34
Other Operating Expenditures:		
Councilors' Travel Expense	$ 225.00	
President's Travel Expense	400.00	
Guest Speaker	100.00	
Delegates to A.M.A.	300.00	
Reporting State Convention	423.08	
Medical Preparedness Committee	450.00	
Cancer Committee	150.00	
Stationery, Printing, etc.	104.45	
President's Jewel, Dr. Griffith's Portrait, etc.	27.88	2,180.41
TOTAL OPERATING DISBURSEMENTS		$ 15,279.91
Other Disbursements—Non-Operating:		
Refunds of Membership Dues (Doctors in Armed Forces,etc.)	$ 2,242.00	
Purchase of Typewriter	115.00	
Purchase of Wood File Cabinet	21.66	
Investment in Defense Bonds	7,032.00	9,410.66
TOTAL CASH DISBURSEMENTS		$ 24,690.57
CASH BALANCE AT DECEMBER 31, 1942		
The Scottish Bank, Red Springs, N. C.:		
Checking Account	$ 3,652.07	
Savings Account	1,537.80	5,189.87
TOTAL CASH DISBURSEMENTS AND BALANCE		$ 29,880.44

SCHEDULE 1—RECONCILIATION OF CASH

CASH ON HAND			$ ———
THE SCOTTISH BANK, Red Springs, N. C.			
Checking Account:			
Balance per Bank Statement		$ 4,145.75	
Less—Outstanding Checks:			
Number	*Amount*		
255	$ 8.00		
287	8.00		
307	16.00		
311	8.00		
316	8.00		
343	436.68		
344	9.00	493.68	3,652.07
Savings Account:			
Balance at December 31, 1942			1,537.80
TOTAL CASH AS SHOWN BY EXHIBIT A			$ 5,189.87

SCHEDULE 2—INVESTMENT IN U. S. DEFENSE BONDS

	Date of Issue	*Date of Maturity*	*Par Value At Maturity*	*Cost*
DEFENSE SERIES "F"				
No. M75369F	12-27-41	12-27-53	$ 1,000.00	$ 740.00
No. M75370F	12-27-41	12-27-53	1,000.00	740.00
No. M75371F	12-27-41	12-27-53	1,000.00	740.00
No. M75372F	12-27-41	12-27-53	1,000.00	740.00
No. M75373F	12-27-41	12-27-53	1,000.00	740.00
No. M75374F	12-27-41	12-27-53	1,000.00	740.00
No. M98838F	1-13-42	1-13-54	1,000.00	740.00
No. M98837F	1-13-42	1-13-54	1,000.00	740.00
No. M98836F	1-13-42	1-13-54	1,000.00	740.00
No. M98835F	1-13-42	1-13-54	1,000.00	740.00
No. M98834F	1-13-42	1-13-54	1,000.00	740.00
No. M98833F	1-13-42	1-13-54	1,000.00	740.00
No. M89019F	12-27-41	12-27-53	100.00	74.00
No. M89020F	12-27-41	12-27-53	100.00	74.00
No. M89021F	12-27-41	12-27-53	100.00	74.00
No. M89022F	12-27-41	12-27-53	100.00	74.00
No. M89023F	12-27-41	12-27-53	100.00	74.00
No. M89024F	12-27-41	12-27-53	100.00	74.00
No. M89025F	12-27-41	12-27-53	100.00	74.00
No. M89026F	12-27-41	12-27-53	100.00	74.00
No. M89818F	1-13-42	1-13-54	100.00	74.00
No. M89819F	1-13-42	1-13-54	100.00	74.00
No. M89820F	1-13-42	1-13-54	100.00	74.00
No. M89821F	1-13-42	1-13-54	100.00	74.00
No. M89822F	1-13-42	1-13-54	100.00	74.00
No. M89823F	1-13-42	1-13-54	100.00	74.00
No. M89824F	1-13-42	1-13-54	100.00	74.00
No. M89825F	1-13-42	1-13-54	100.00	74.00
SAVINGS SERIES "G" Interest Rate 2½% Payable Semi-Annually from date of Issue:				
No. M1186465G	12-23-42	12-23-54	1,000.00	1,000.00
No. M1186465G	12-23-42	12-23-54	1,000.00	1,000.00
TOTAL PAR VALUE AT MATURITY			$15,600.00	
TOTAL COST VALUE AT DATE OF ACQUISITION—EXHIBIT A				$12,064.00

SCHEDULE 3—BUDGET COMPARISON—RECEIPTS AND EXPENDITURES

	Budget Provisions	*Actual Receipts or Disbursements*	*Under (*) Realized Receipts or Over (*) Expended*
RECEIPTS			
Membership Dues—Current and Prior Years (Less Refunds of $2,242.00)	$ 11,142.00	$ 10,375.00	$ 767.00*
Medical Journal—			
Advertising	4,600.00	5,751.17	1,151.17
Interest	43.00	37.80	5.20*
TOTAL RECEIPTS	$ 15,785.00	$ 16,163.97	$ 378.97
DISBURSEMENTS			
Secretary's Office:			
Salary	$ 2,400.00	$ 2,400.00	$ ———
Clerical Assistance	1,200.00	1,200.00	———
Stationery	100.00	209.37	109.37*
Rent	300.00	300.00	———
Travel Expense	600.00	500.00	100.00
Auditing	35.00	34.95	.05
Miscellaneous and Emergency	700.00	300.84	399.16
Total—Secretary's Office	$ 5,335.00	$ 4,945.16	$ 389.84
North Carolina Medical Journal:			
Editor's Salary	$ 1,200.00	$ 1,200.00	$ ———
Assist. Editor's Salary	900.00	900.00	———
Rent	300.00	300.00	———
Printing Journal	5,000.00	5,754.34	754.34*
Total N.C. Med. Journal	$ 7,400.00	$ 8,154.34	$ 754.34*
All Offices Except Secretary's:			
Stationery	$ 100.00	$ 104.45	$ 4.45*
Councilors' Travel Exp.	250.00	225.00	25.00
President's Travel Exp.	400.00	400.00	———
Executive Committee	500.00	———	500.00
Legislative Committee	300.00	———	300.00
Other Committees	600.00	600.00	———
State Meeting Reporting	500.00	423.08	76.92
A.M.A. Delegates	300.00	300.00	———
Guest Speaker	100.00	100.00	———
Other	———	27.88	27.88*
Total—Others	$ 3,050.00	$ 2,180.41	$ 869.59
TOTAL DISBURSEMENTS	$ 15,785.00	$ 15,279.91	$ 505.09

SUMMARY—BUDGET POSITION

RECEIPTS—Excess of Realized over Anticipated	$ 378.97
DISBURSEMENTS—Decrease Under Appropriation	505.09
NET REVENUE IN EXCESS OF BUDGET ANTICIPATION	$ 884.06

President Cobb: Thank you, Dr. Coppridge.

Gentlemen, what is your pleasure as to the report of the Finance Committee?

. . . A motion to approve the report was made and seconded, and when put to vote was carried.

President Cobb: The motion is carried, and it is so ordered.

We now come to the report of the Committee on Commercializing Drugs, Dr. James M. Northington, Chairman.

. . . No report.

President Cobb: We will next have the report of the Committee on Hospitals, Dr. J. B. Whittington, Chairman.

. . . No report.

President Cobb: Dr. W. T. Parrott of Kinston will give the report of the Committee on Mental Hygiene.

Dr. W. T. Parrott (Kinston): We have very little to report, but we did have a lot of correspondence. Unfortunately, our Chairman, Dr. William Allan, as all of you know, died during the year.

Dr. Allan, we really feel, had something of value to report if his untimely death had not prevented it. I knew Dr. Allan for forty years or more; and he did some wonderful work as a neurologist. He was almost ready to report the results of his study and investigations of genetics.

Dr. Allan meant a great deal to me, because he put more into medicine than he took out. He was not parasitic; he did not simply live by the things furnished to him but he added to medicine. Every man that practices medicine ought to add a little something. Dr. William Allan added a great deal, and he received my deep respect.

President Cobb: Thank you, Dr. Parrott. Dr. Allan's death was a great loss to the Society.

What is your pleasure, gentlemen, about Dr. Parrott's report?

. . . On motion, duly seconded and carried, the report was accepted.

President Cobb: I believe the secretary has a communication to read to us.

Secretary-Treasurer McMillan: I have here a communication addressed to Dr. Donnell B. Cobb, from the North Carolina State Nurses Association, which reads as follows:

"My dear Dr. Cobb: The Board of Directors of the American Nurses Association has recommended that a committee be appointed in each state, composed of representatives of all divisions of nursing, to meet with the state hospital association and the state medical association to work out plans to relieve the nurse shortage for the duration of the war.

"Do you think it would help if committees from these organizations could get together and discuss some cooperative method of assisting with this problem? The nurses need the assistance of the other two groups in recruiting young women to enter our nursing schools and in encouraging inactive nurses to return to active nursing for the duration. We also need your assistance in helping to plan for the best use of available nurse resources.

"If this plan meets with the approval of the North Carolina Medical Society I hope a committee can be appointed while the Society is in session in Raleigh next week.

"With best wishes for a most successful convention, I am

Cordially yours,
Flora Wakefield,
President, North Carolina State
Nurses Association."

President Cobb: Gentlemen, do you care to take any action on this request that our Society appoint a committee to cooperate with the North Carolina State Hospital Association and the North Carolina State Nurses Association to see if the nursing situation can be bettered?

A Member: Mr. President, I move that the Chair appoint a committee of three to cooperate with committees from the other two associations as far as possible.

. . . This motion was seconded and was carried.

President Cobb: The program for the afternoon has been completed, and a motion for adjournment is in order.

A Member: I move we adjourn.

. . . This motion was seconded and carried, and the House of Delegates thereupon adjourned, at 5 p.m.

MONDAY EVENING SESSION
May 10, 1943

The House of Delegates reconvened in the Virginia Dare Ballroom of the Hotel Sir Walter at 8 p.m.

* * * *

President Cobb: Gentlemen, the House of Delegates will now reconvene, and we will come to order.

We will begin by receiving a report from our Committee on Industrial Health. Dr. H. F. Easom is Chairman of the Committee.

. . . No report.

President Cobb: We shall be glad to receive the report of the Committee on Legislation, by Dr. Haywood.

Dr. Hubert B. Haywood (Raleigh):

Report of the Committee on Legislation

My first meeting was with the Executive Committee of the North Carolina Nurses' Association. It had been reported that the Governor in his message to the Legislature had asked that all fees from licensing boards in the state be paid into the General Fund of the State and that the spending of these funds and their disbursement be made through Mr. Robert Deyton, Director of the Budget for North Carolina.

Miss Chapman, Secretary of the Nurses' Association, and I called on Governor Broughton. He assured us that this would not apply to the nursing and the medical profession, but only to the so-called trades. He expressed his interest in any and all progressive legislation which we might sponsor which favored public health in North Carolina.

I next met with the Nurses' Association Directors and the Directors of the North Carolina Hospital Association. Mr. McKeithan, the President of the Association, and I were asked to meet with Mr. Edwin Gill, the Commissioner of Revenue of the State of North Carolina, in regard to the Sales Tax and the Use Tax as applied to the hospitals and the medical profession in the purchase of the medical and surgical supplies. The North Carolina Statutes had never exempted them from these taxes. Mr. Gill, Mr. William Adams, Assistant Attorney General of North Carolina, Mr. McKeithan and I met in Mr. Gill's office. It was decided that an amendment to the Statute would be presented to the Legislature asking that non-profit institutions for the care of the sick be exempted from the sales and use tax.

The Governor asked our support and endorsement of a program and a bill which he sponsored to set up a Central Board of Directors for the insane asylums of the state along with other improvements and increased appropriations for these afflicted people.

These facts were presented to Dr. Donnell Cobb, President of the Society, and he saw fit to endorse this progressive legislation in the press of the state. He clearly stated that the North Carolina Medical Society favored increased and better care of the insane with more participation in the conduct of the affairs of these and allied institutions by the North Carolina medical profession.

Our next problem was to meet the efforts of the naturopaths to pass a bill in the Legislature licensing them to practice in North Carolina. The bill as drawn gave them the right legally to practice all branches of medicine in the state. Naturopathy is a disowned and disavowed off-shoot of chiropractic healing. Their bill was sponsored by one of the best lobbyists in the state and was introduced by a member of the Health Committee of the Senate. Without notice to our committee this bill was switched from the Judiciary Committee of the Senate to the Health Committe of the Senate at an advanced date and hour. We were thus deprived of our opportunity of speaking against the bill. It received a favorable report from the Senate Committee on Health. We petitioned the Senate Committee on Health for a rehearing, which was granted us. Dr. Carl Reynolds, State Health Officer, our attorney and I spoke in the Senate Chamber against this bill. The committee reversed its vote and the bill was killed by a vote of seven to three.

The Chairman of the State Osteopathic Legislative Committee, Dr. T. T. Spence of Raleigh, asked that we have a conference with him and their attorney, Ex-Governor Ehringhaus, concerning a bill which they desired to introduce into the Legislature giving to osteopaths the legal right in North Carolina to prescribe drugs in the practice of osteopathy. It was the sense of our committee that this bill should be opposed. We met with these gentlemen in our attorney's office.

We informed them of our reason for opposing this bill, stating plainly to them that we did not believe that the standards of teaching in their schools approached that of the medical schools and that osteopathic therapy was necessarily limited in its scope, since the definition of the term osteopathy itself implied that the underlying pathology was one of structural misplacement. They stated that there were only four states in the Union which did not give them the privilege of prescribing drugs and that North Carolina was one of them. They claim that they do not wish to treat diseases by drugs but only to use them to meet emergencies. They claim further that their system of therapeutics as applied to drugs is similar to ours and that their course of study is similar to ours. It is further asserted that their osteopathic colleges, of which there are six approved by their National Association, are the equal of ours. Facts obtained from the Bureau of Legal Medicine of the American Medical Association do not bear out these claims.

In the face of our opposition they agreed to withdraw this bill, as we promised to fight it in the Legislature. Their attorney said that he did not believe that the Legislature would consider any controversial legislation this late in its session. There are certain facts which you should know. There are about eleven thousand osteopathic physicians in the United States. There are forty-four osteopathic physicians in North Carolina. It is claimed that of this number only two have failed to study drug therapy in college.

We have the problem facing us as a profession as to what our relationship shall be to these healing cults and what measures we shall endorse as a profession in regard to their licensing. It is my understanding that a basic science board takes licensing out of the hands of the medical or healing cults and places it in the hands of the state's educational set-up. Apparently this would not be ideal if we were striving to limit the sphere of therapeutics of any healing cult. A composite board of osteopaths and physicians—while it would cause a higher percentage of failures of osteopaths and poorly prepared cultists—would, I am informed by Dr. Spence, if it followed the precedence of Virginia and some other states, give an unlimited license to the osteopath who successfully passed the board. This plan does not seem altogether satisfactory to either group, owing to the high percentage of osteopathic failures on the one hand and the granting of an unlimited license on the other hand. An unlimited license implies admission of patients under osteopathic care to hospitals supported by state and national tax funds. Investigators state that where there is a joint board fewer osteopaths are able to pass the examinations than where there is a board composed solely of osteopathic examiners.

I present these facts for your thought and consideration regarding cults and their practice in North Carolina because the time is close at hand when you will either see them get unlimited licenses in North Carolina or else you must sponsor some type of compromise legislation.

We successfully had legislation withdrawn which would have given inmates of asylums and sanatoriums free use of the telephone and other means of communication with people on the outside and would have constituted it a felony on the part of the officials of these institutions to deny such free communication.

The bill to add a food processor, a dairy man, and a restaurant keeper to the State Board of Health was successfully opposed.

Many other matters regarding public health and legislation came up and were given consideration and action where action was needed. Our attorneys were Messrs. Smith and Leach of Raleigh. They were cooperative and helpful.

I had the support and advice of our President and the other members of our committee, who were consulted by me whenever anything of importance came before the Legislature which concerned our Society and the practice of medicine in North Carolina. We were 100 per cent successful.

Respectfully submitted,

Hubert B. Haywood, Chairman

President Cobb: Dr. Haywood, we are very grateful to you for this fine report and for the excellent work you have done for the medical profession during the year. I think there is no committee of our society that is more important than the Legislative Committee. It looks out for the interests of our profession and protects the people against these various cults.

The report is before you, gentlemen.

. . . On motion, duly seconded and carried, the report was accepted.

President Cobb: We will now proceed with the organization of the nominating committee. As you know, we have ten districts, and each district elects one member of the nominating committee. We will now adjourn for ten minutes, and the delegates from each district will get together and elect their member of the nominating committee.

. . . Thereupon a recess of ten minutes was taken.

President Cobb: Gentlemen, we will come to order. We are ready to receive the names of the members of our nominating committee.

. . . The following were reported as constituting the committee:

First District—Dr. T. L. Carter
Second District—Dr. Ben F. Royal
Third District—Dr. J. Street Brewer
Fourth District—Dr. M. A. Pittman
Fifth District—Dr. Arthur A. James, Jr.
Sixth District—Dr. Ivan M. Proctor
Seventh District—Dr. Joseph A. Elliott
Eighth District—Dr. Fred M. Patterson
Ninth District—Dr. Ross S. McElwee
Tenth District—Dr. B. O. Edwards

President Cobb: Gentlemen, our secretary has some instructions for you.

. . . Secretary-Treasurer McMillan gave instructions to the nominating committee, and its members left the room to hold their meeting.

President Cobb: Gentlemen, I think we have with us tonight a delegate from the Medical Society of Virginia, Dr. O. B. Darden, of Richmond. Dr. Darden, we welcome you and are glad to have you with us. I hope you will take part in our meeting. If you have a word for us now we shall be glad to hear it.

Dr. O. B. Darden (Richmond, Virginia): Thank you, Mr. Chairman. It is a pleasure to bring greetings from the Medical Society of Virginia to the Medical Society of the State of North Carolina. I should also like to extend to you the personal and official greetings of our President, Dr. J. Morehead Emmett.

President Cobb: Thank you, Dr. Darden.

Gentlemen, we are now ready to receive the report of the Committee to Revise the Constitution and By-Laws, which will be presented by our Secretary, Dr. McMillan.

Secretary-Treasurer McMillan: Mr. President and gentlemen of the House of Delegates: Your Committee, composed of Dr. Hubert A. Royster, Dr. James W. Vernon, Dr. F. Webb Griffith, Dr. George W. Mitchell, and myself, submits the following report:

Report of the Committee to Revise the Constitution and By-Laws

The Committee to Revise the Constitution and By-Laws met on March 25, 1943, at the Hotel Sir Walter in Raleigh, with all members present. The Committee proposes that the following changes be made in the Constitution and By-Laws.

Constitution

Article I. This article was amended by adding the following: "The words 'The Society' in this Constitution and By-Laws shall be construed to mean the Medical Society of the State of North Carolina."

Article II. No change.

Article III. No change.

Article IV. Section 4. After the word "meeting", which is the last word in this section, add the following: "Also the chairman of any section may extend to a guest the privileges of the floor in that section. All invitations to non-members of the Society to appear upon the prepared program of any meeting must be extended through the President."

Article IV. Section 6. After the words "good standing", add "The terms of members while serving in the Armed Forces of our Country shall be construed as continuous membership in the Society."

Article V. No change.

Article VI. No change.

Article VII. No change.

Article VIII. Section 3. After the word "session" and before the word "however" insert a semicolon in lieu of the comma.

Article IX. Section 3. Amend as follows: After the word "Health" delete the remainder of the section and add the following: "and the member of the State Board of Nurse Examiners shall be nominated by the Nominating Committee and elected by the House of Delegates for a term of three years."

Article X. No change.

Article XI. No change.

Article XII. No change.

Article XIII. Delete complete Article XIII and amend to read as follows:

"The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual meeting, provided that such amendment shall have been presented in open meeting at the previous annual meeting, and that it shall have been sent officially to each component county society or printed in the official publication of the Society at least two months before the session at which final action is to be taken."

By-Laws

Chapter I. No change.

Chapter II. No change.

Chapter III. No change.

Chapter IV. Section 1. In the last sentence of Section 1, change the time "8 p.m." to "2 p.m." After the word "transacted", which is the last word in Section 1, add the following: "The election of the Nominating Committee shall not take place until after 8 p.m. of the first session of the House of Delegates."

Chapter IV. Add a new section, to be known as Section 16, which shall read as follows: "There shall be made to the House of Delegates an annual report of the financial condition and of the management of the **North Carolina Medical Journal**. This report does not relieve the management of the **Journal** of its responsibility to the Executive Committee of the Society in its advisory capacity."

Chapter V. No change.

Chapter VI. Section 4. After the words "fiscal affairs of the Society," which words are in the sixth line of said Section, delete the words "He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary;" Start a new sentence with the word "he," making this read: "He shall subject his accounts, etc."

Chapter VI. Section 5. After the sentence ending with the words "Scientific Work and on Publication" and before the sentence beginning with the words "He shall employ such assistants . . ." add a new sentence as follows: "He shall also serve as Business Manager of the official publication of the Society."

Chapter VII. Councilor Districts.

Section 1. To facilitate the more perfect organization of the medical profession, the State of North Carolina is hereby divided by counties into ten councilor districts, as follows:

First District—Bertie, Chowan-Perquimans, Gates, Hertford and Pasquotank-Camden-Currituck-Dare.

Second District — Beaufort, Carteret, Craven, Hyde, Jones, Lenoir, Martin-Washington-Tyrrell, Pamlico and Pitt.

Third District — Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender and Sampson.

Fourth District—Edgecombe-Nash, Greene, Halifax, Johnston, Northampton, Wayne and Wilson.

Fifth District — Chatham, Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Robeson and Scotland.

Sixth District — Alamance - Caswell, Durham, Orange, Franklin, Granville, Person, Vance, Wake and Warren.

Seventh District — Anson, Cabarrus, Cleveland, Gaston, Lincoln, Mecklenburg, Montgomery, Rutherford, Stanly and Union.

Eighth District — Forsyth-Stokes, Guilford, Randolph, Rockingham, Surry-Yadkin, and Wilkes-Alleghany.

Ninth District—Avery, Burke, Caldwell, Catawba, Davidson, Iredell-Alexander, Rowan-Davie and Watauga-Ashe.

Tenth District — Buncombe, Cherokee, Haywood, Henderson, Jackson, McDowell, Macon-Clay, Madison, Mitchell-Yancey, Polk, Swain-Graham and Transylvania.

Chapter VIII. Section 1. Change the words "the Chairman" in the fourth line of Section 1 to the words "its President."

Chapter VIII. Section 2. Delete the last sentence in this section and insert the following sentence: "The sum of $25.00 per year will be allowed by the House of Delegates to cover the necessary expenses incurred by such Councilor in the line of duties within his district."

Chapter IX. No change.

Chapter X. Section 5. Delete the second sentence beginning with the words "They shall also nominate" and ending with the words "as the Society may determine", and insert the following sentence: "They shall also nominate a Committee on Legislation, a Committee on Finance, Delegates to the American Medical Association, and to such other bodies as the Society may determine."

Chapter X. Section 8. Delete the first sentence and insert the following sentence: "The Committee on Arrangements shall consist of one member who shall be Chairman, appointed by the President of the Society each year, and two or more members elected by the county society in the territory in which the annual meeting is to be held."

Chapter X. Add a new section to be known as Section 9 to read as follows: "All committees not provided for in Section 5 shall be appointed by the President of the Society."

Chapter XI. Section 1. Delete the entire section and insert the following as Section 1: "The following Sections shall constitute the regular scientific program:

"Surgery; Practice of Medicine; Gynecology and Obstetrics; Public Health and Education; Pediatrics; Ophthalmology and Otolaryngology; General Practice of Medicine and Surgery.

"During the meeting of each Section the Chairman for the following year shall be elected either in open session or through a Committee appointed for the purpose by the Chairman of the Section."

In the revised edition of the Constitution and By-Laws, the words "official publication of the Society" will be used in lieu of "Transactions of the Society."

Respectfully submitted,

Dr. Hubert A. Royster, Chairman
Dr. G. W. Mitchell
Dr. James W. Vernon
Dr. F. Webb Griffith
Dr. Roscoe D. McMillan

President Cobb: Thank you very much, Dr. McMillan. I know that represents a great deal of work.

Our By-Laws may be amended by a majority of the delegates at any time during the session, provided the amendment has lain upon the table for one day. So the By-Laws may be amended at our next meeting, on Wednesday, if that is your desire.

Secretary-Treasurer McMillan: Mr. President, in spite of the fact that I am a member of the Committee on Revision of the Constitution and By-Laws and that a majority of the Committee recommended these amendments which have been read, I wish to say this. The Committee on Finance and the Committee on Legislation are very important committees. I am going to dissent from the report and move that the president rather than the Nominating Committee decide on those committees. The president, I think, knows a great deal more about these committees than does the Nominating Committee.

Dr. George W. Mitchell (Wilson): As one of the members of the Committee to Revise the Constitution and By-Laws, I wish to say that we considered Dr. McMillan's suggestion very seriously, but we thought that this should be a democratic institution, and the only way this can be a democratic institution is to let the House of Delegates control its own finances and its own legislation. That is the reason we did not leave those committees up to the president.

President Cobb: Thank you, Dr. Mitchell. I wish to take this opportunity to thank the members of the committee, who have gone so thoroughly into the matter of amending our Constitution and By-Laws. This report, of course, comes to you tonight for consideration but not for action. The revision of the Constitution will be acted upon next year, and the revision of the By-Laws on Wednesday afternoon.

Dr. Mitchell: Mr. President, since we have to send copies of the proposed revisions in the Constitution to the county societies, why would it not be a good thing to send copies of the amendments to the By-Laws at the same time, so they may become acquainted with them? I think it would be better to defer action on the By-Laws until next year, instead of voting upon the revision of the By-Laws at our meeting on Wednesday afternoon.

President Cobb: Do you make that as a motion?

Dr. Mitchell: I do.

Dr. C. R. McAdams (Belmont): I second the motion.

President Cobb: Is there any discussion?

. . . As there was no discussion the motion was put to vote and was carried.

President Cobb: We will now proceed with the reports of our committees, and from Dr. Haywood we shall be very glad to have the report of our Medical Preparedness Committee.

Dr. H. B. Haywood (Raleigh):

Report of Committee on Medical Preparedness

The record of North Carolina's physicians during this war is one that we have every right to be proud of. Our first physician to lose his life in this conflict was Dr. Jervey of Tryon, who fell in the naval Battle of Midway.

We sent a list of over 500 names of physicians under 45 years of age to the recruiting officer at Fort Bragg to be examined for commissions in the United States Army during the year 1942.

North Carolina furnished 365 medical officers to the Army and Navy in 1942. Recruiting was stopped in August of 1942. We had oversubscribed our quota by 30 per cent by that date.

I have no knowledge of any North Carolina physician's being drafted into the army as a private during 1942 and 1943.

Up to May, 1942, there were 257 medical officers in the army from North Carolina. Some had been in the army all of their professional lives, and some were National Guard and some reserve officers.

On July 9, 1942, I was notified by Major Sam F. Seely of the Procurement and Assignment Service that the total required quota of physicians would be 42,000 for the year. North Carolina had given 150 by April 1, and would be called on to fill in a total quota of 300 by the end of the year.

On December 1, 1942, I was notified that North Carolina had filled its quota to 163 per cent and that the physicians from this state in the armed services in excess of the 1942 quota will be credited to the next year's quota.

On December 4, 1942, I was unofficially notified that as the over-all ratio of physicians to population was 1:2,273 we would not be called on to furnish

any physicians to the armed forces in 1943, with the exception perhaps of youngsters who have just completed internships and who have not established themselves in practice. There may also be centers in the state where there are young physicians who are not essential to the particular area in which they are located—where the ratio of physicians to civilian population is more than 1:1,500. Selective Service may pluck such a youngster in such an area, so he will probably have to come into the service or move to some area where he may be considered essential to a civilian community.

On February 3 it was officially confirmed that North Carolina was not to have a quota of physicians to furnish to the armed forces in 1943.

It was reported to us that the total number of physicians in the United States as shown by the Census of 1941 was 176,091. Of these, 84,000 were under 45 years of age. The Census of 1941 showed that North Carolina had a total of 2,780 doctors. The total number of doctors in the army and navy from North Carolina as of September 1, 1941, was 521. The army had 472 of this number and the navy 49. It was estimated that there were 1339 doctors in North Carolina under 45 years of age.

In February we were asked to reclassify all doctors in North Carolina. Cards were mailed as directed by the War Man Power Board to all counties in North Carolina and an effort was made to get a proper classification of the status of every doctor in the state. A good response was gotten from seventy-five of the counties. Twenty-five of the counties failed to respond, and we had to depend on the Directory of the American Medical Association, that of the State Medical Society, the North Carolina Year Book, and information which we had gathered and filed.

We have completed this reclassification, and have tabulated the results on the chart which accompanies this report. The physician-population ratio in the state is one doctor to every 1961 people. We are feeling this shortage. Many communities are in need of additional physicians. Some communities lack usual medical care.

A considerable part of our time this year has been spent trying to get men to go to communities which lack physicians. To date we have relocated approximately twelve men. This is well up to the national average. The total number of relocations for the nation is about 400. A considerable number of men who apply for relocations are either physically or temperamentally unfit to meet the needs of the situations.

We have helped find and hold interns and resident physicians. We have been instrumental in bringing a few physicians within the state. We have held together hospital and teaching staffs. We have cooperated with the medical schools of the state whenever requested by them to help them hold key men and to retain an adequate number of resident physicians for teaching purposes.

It is evident from these figures and from our researches that North Carolina will be able to supply relatively few more men to the services without creating some scarcities and difficulties within our own borders.

I was sworn into Federal Service during 1942. There is no salary. The Federal Government has not allowed any financial help except for travel. The funds for this work have been those which the State Medical Society allowed for the Medical Preparedness Committee and those which I myself provided. The work could not have been carried on except for the loyal cooperation of our district chairmen and our county procurement and assignment committees.

I am sure that mistakes have been made. I am sorry for them. I have given every one with a grievance a hearing and have tried to the best of my ability to correct inequalities. I have consulted frequently with individual physicians, groups of physicians, with local draft boards, and with the head officials of the North Carolina Selective Service. I have not forced any man to go into the army or the navy against his will and do not propose to do so at any time. I have not exercised the full authority of the office and do not propose to make any one available for the army unless he is so designated by either selective service or his county procurement and assignment service.

We have sent approximately 25 men to the army and navy during 1943.

Classification of Physicians in North Carolina

May 1, 1943

NUMBER OF PHYSICIANS

Classification of essentiality or * availability	White Year of Birth					Negro and other non white Year of Birth				
	1906 or later	1899-1905	1879-1898	1878 or earlier	Total	1906 or later	1899-1905	1879-1898	1878 or earlier	Total
I-A **	25	8	—	—	33	5	2	—	—	7
I-B	9	8	—	—	17	—	—	—	—	—
II-A	70	93	30	—	193	1	5	3	1	10
II-B	35	2	—	—	37	—	—	—	—	—
II-C	77	8	—	—	85	4	—	—	—	4
II-D	8	1	—	—	9	—	—	—	—	—
II-E	2	1	—	—	3	—	—	—	—	—
III-A	54	112	291	1	458	2	4	16	5	27
III-B	18	23	11	—	52	—	—	—	—	—
III-C	7	14	24	—	45	1	1	1	—	3
III-D	12	6	22	—	40	1	—	—	—	1
III-E	1	1	3	—	5	—	—	—	—	—
IV-A, B, C	54	23	389	251	717	1	1	32	6	40
Total	372	300	770	252	1694	15	13	52	12	92

* The classification referred to is the one assigned by the State P & A S Chairman in accordance with the memorandum dated December 8, 1942 (Form No. 166, for physicians), or January 15, 1943 (Form No. 171, for dentists).

** All of the subclasses (IA-1, IA-2 a), etc.) under IA are to be grouped together and shown as IA for this report.

Form No. 195-A 2-23-43

I wish to thank you for your confidence and help and to assure you that during my tenure of office I shall continue to try to serve you to the best of my ability.

Respectfully submitted,

Hubert Benbury Haywood, Chairman

President Cobb: Dr. Haywood, we thank you for this report.

Dr. Haywood is carrying a tremendous burden, not only as Chairman of our Medical Preparedness Committee but also by virtue of his appointment by Mr. McNutt as Chairman of the Procurement and Assignment Committee for Physicians for this state. I am sure his report speaks well for the patriotism of North Carolina.

What will you do with the report?

Dr. M. D. Hill (Raleigh): I move that it be accepted.

. . . This motion was seconded by Dr. J. L. Winstead, of Greenville, and was carried.

President Cobb: The motion is carried, and it is so ordered.

We will now have the report of the Committee on Insurance. I believe the Secretary will give that.

Secretary-Treasurer McMillan: Dr. Hamilton McKay, the Chairman of this Committee, was called to Richmond today and asked me to read the report for him.

Report of the Committee on Insurance Merge

The Insurance Committee of the North Carolina State Medical Society met at the Hotel Barringer in Charlotte, September 16, 1942, with the following members present: Dr. Julian Moore of Asheville, Dr. Paul McCain of Sanatorium, Dr. Hamilton W. McKay of Charlotte. Representing Hospital Saving were Mr. Robert Lassiter, President, Mr. E. C. Crawford, Executive Secretary; representing Hospital Care, Mr. E. M. Herndon. Mr. Carl Flath, Administrator of the Charlotte Memorial Hospital, formerly associated with Dr. John Mannix in hospital insurance work in the state of Michigan, was an invited guest.

The Committee was unanimous in its opinion that the Hospital Saving and Hospital Care Associations should merge and if possible the desirable insurance features of each association be retained. The chairman of the Committee was instructed to request the president of the North Carolina State Hospital Association, Dr. J. B. Whittington, to appoint a committee with power to act. The purpose of the committee from the North Carolina State Hospital Association would be as follows: First, to consider the desirability of a merge of the Hospital Saving and Hospital Care Associations. Should this committee approve the merge of these two associations, the chairman should notify Dr. Hamilton W. McKay, Chairman of the Committee on Insurance of the State Medical Society. It should then be his duty to transmit the resolution passed by the Committee on Insurance from the State Medical Society to the Presidents of the Boards of Directors of the Hospital Saving and Hospital Care Associations.

The resolution passed by this Insurance Committee on Merge is as follows:

"That the President of Hospital Care and Hospital Saving appoint one man from each Board of directors and that these two representatives in turn should elect an insurance advisor. That these three men, one each from Hospital Saving and Hospital Care and the insurance advisor, after making a through study of the two associations and the insurance needs of the people, hospitals, and doctors of the state at large, should draft a plan for the proposed merger. Said plan should then be submitted to the committee appointed by the North Carolina Hospital Association and the committee appointed by the North Carolina State Medical Society. If the proposed plan is approved by these two committees it would then be submitted to the Board of Directors of Hospital Care, Hospital Saving and Medical Service for their approval or disapproval."

Respectfully submitted,

Hamilton W. McKay, Chairman
Committee on Insurance Merge

President Cobb: Dr. McMillan, we thank you very much for giving us the report of this committee.

What will you do with it, gentlemen?

Dr. H. L. Brockmann (High Point): I move that the report be accepted and that the committee be continued and asked to exert its best efforts to effect an amalgamation of the hospital insurance associations of the state.

Dr. Wingate Johnson (Winston-Salem): I second the motion.

. . . The motion was carried.

Secretary-Treasurer McMillan: Mr. President and gentlemen, you all know that the Aetna Casualty & Insurance Company, of Hartford, Connecticut, has been insuring our members against malpractice suits. This company wants to increase its rate to members of the State Medical Society from $18.00 to $22.00 for each member of the Society, for $5,000.00 to $15,000.00 limits.

President Cobb: Gentlemen, does anyone make a recommendation or a motion concerning Dr. McMillan's report?

Dr. J. Street Brewer (Roseboro): I move that the matter be referred to the Executive Committee.

Dr. C. F. Strosnider (Goldsboro): I second the motion.

. . . The motion was carried.

President Cobb: Dr. Manning, we shall be delighted to hear from you about our Hospital Saving Association.

Dr. I. H. Manning (Chapel Hill):

Report on the Hospital Saving Association of North Carolina, Inc.

The growth of hospitalization insurance has been phenomenal—particularly of the voluntary non-profit associations which are now known as the Blue Cross Plans. Although they began less than ten years ago there are now 77 of these plans in operation in thirty-five states and three Canadian provinces. They have a combined membership of more than eleven million and during 1942 paid to the 2,500 cooperating hospitals more than $50,000,000.00 and had accumulated a reserve of 28 million. There was a gain in memberships in 1942 of 2 million and in 1943 a gain of 3½ million is anticipated.

The Hospital Saving Association is one of the Blue Cross Plans, the first one to be attempted on a state-wide program and I believe the first and only one to be sponsored jointly by the State Medical Society and Hospital Association. Organized in 1935, its progress to date is shown in the mimeographed sheets. The total membership is now 194,500, an increase of 14,717 in 1942. The amount paid to hospitals has reached the grand total of $2,800,000.00, $635,000.00 of which was paid in 1942, and 96 per cent of which was paid to hospitals in North Carolina. The most impressive figure to me is the number of admissions. That the Association was able to help pay the expense of the hospitalization of 20,000 people in 1942 is a real accomplishment. The average amount paid per admission, even including the one, two, and three days' stay, was nearly $32.00.

I feel that the Association is serving a useful purpose.

Under the wise management of E. B. Crawford, Executive Director, the unencumbered cash reserve is now more than is required by the Insurance Commission, and as a result the benefits to its members and the payments to the hospitals have been substantially increased as you will also see on the mimeographed sheet. I hope, eventually, we can take the profit out of the hospitalization insurance business.

The surgical and obstetrical benefits which were approved by the House of Delegates two years ago have not been taken as rapidly as was anticipated, in spite of the very low rate at which they have been offered. The combined hospital and surgical coverage is offered to the individual at $1.20 and to the family at $2.50 a month, an increase of 60 and 90 cents per month for professional service. And here, let me emphasize that the professional fees are in part payment. We have no desire and make no attempt to fix the professional fee charged for any service. This is wholly a matter between the patient and the doctor. We hope, however, "the wind will be tempered to the shorn lamb." It must be obvious to anyone that unless the member gets something out of it, he will not subscribe.

The number of members carrying combined coverage is approximately 27,500, 8,800 of whom are in our "cost plus" plan, which means that the employer underwrites the program and pays the Association an administrative charge. This, I think, reflects an increasing interest of the employer in the welfare of his employees. As a matter of fact, our experience indicates that the employer is more interested in protecting the employee against the hazard of sickness than is the employee himself.

From the financial point of view, the experience has been encouraging. The claims for regular members have amounted to about 70 per cent of the income from these members. The total amount paid by the Association for professional service in 1942 was $39,033.00—$22,306.00 for our regular members and $16,727.00 for the cost plus group. The volume of business has been too small to permit an accumulation of any substantial reserve on this account. When this occurs, the fee scale will be raised.

We hope the broader program will grow substantially during the current year. If we can make a real success of it, we will have a strong argument against federal interference. Much will depend upon the cooperation of the profession.

Hospital Saving Association of North Carolina, Inc.
Yearly Progress—Hospitalization

Year	*Members of Hospitalization Plan*	*Hospital Admissions*	*Hospital Days Used*	*Paid for Hospitalization*
1936	14,395	541	4,451	$ 17,886.39
1937	36,913	2,326	18,681	76,844.49
1938	83,436	8,345	64,835	267,696.49
1939	123,848	13,484	103,557	431,418.16
1940	137,074	16,087	128,880	521,197.74
1941	166,201	18,590	143,675	577,680.69
1942	181,032	20,065	154,510	635,069.76
1943 (4 mos.)	194,745	6,317	52,109	218,255.28
Totals		85,755	670,698	$2,746,049.00

Yearly Progress—Surgery

Year	*Members of Surgical Plan*	*Surgical Claims*	*Paid for Surgery*
1941	5,086	130	$ 3,335.00
1942	23,770	1,346	36,689.00
1943 (4 mos.)	27,771	542	17,257.00
Totals		2,018	$ 57,271.00

Benefits Added Since 1942 Meeting of the Medical Society with no Additional Charge to the Member

1. X-rays—Up to, but not to exceed, $10.00 for any one admission.
2. Material for casts—up to, but not to exceed, $5.00 for any one admission.
3. Out-patient service—up to, but not to exceed, $7.50 for accident cases if service rendered within twenty-four hours after accident (compensation cases excluded).

Extra Additions Effective June 1, 1943

1. A special allowance of $5.00 toward the cost of anesthetic fee, if not administered by an employee of the hospital.
2. Hospital's regular charge up to, but not to exceed, $15.00 for oxygen therapy.
3. In addition to the thirty days coverage allowed previously during each certificate year, 50 per cent of regular benefits (not to exceed $2.00 per diem) allowed during each certificate year for a period not to exceed 60 additional days.

President Cobb: Thank you, Dr. Manning, for this very full report.

Does anyone move its acceptance?

Dr. C. F. Strosnider (Goldsboro): I move that the report be accepted.

. . . The motion was seconded and was carried.

President Cobb: We should now like to hear from the Editorial Board of our **North Carolina Medical Journal.** Dr. Johnson, will you make the report?

Dr. Wingate M. Johnson (Winston-Salem): Mr. President, I am glad of this opportunity to say just this word about our **Journal.** We have done our best to make it a credit to the organization. The year ahead will probably be one of the hardest years we have had, from the standpoint of obtaining contributions, because so many of the men are in the armed forces and those left behind are so busy that they have not time to write papers. I hope that you who are here will keep this matter in mind and, whenever you hear a good paper at a county meeting or elsewhere, ask that it be sent to our **Journal** for publication.

President Cobb: Thank you, Dr. Johnson, for this report.

What will you do with it gentlemen?

. . . On motion duly made and seconded the report was carried.

President Cobb: May we hear from our Committee on Postgraduate Medical Study? Dr. William H. Smith is Chairman.

Dr. William H. Smith (Goldsboro):

Report of the Committee on Postgraduate Medical Study

Postgraduate instruction in the state has been greatly curtailed during the latter part of 1942 and so far in 1943. The reason is well known to all of you and will not be mentioned further.

The Duke University School of Medicine, which with the State Board of Health and the University of North Carolina, was giving courses in obstetrics and pediatrics, terminated these courses in September of last year. The privilege of attending clinics and ward rounds and working on the wards and in the out-patient department is still available.

The University of North Carolina has discontinued the courses which were given in cooperation with the Extension Division.

The work in which the School of Public Health is concerned has been curtailed too. This is chiefly on account of the lack of students. The army sent a group of twenty medical officers to the School last fall, and also there have been about ten physicians and sanitarians from South American countries as

students. This is part of the Inter-American cooperation movement.

The Bowman Gray School of Medicine of Wake Forest College has not conducted any formal courses in postgraduate work this past year. However, Lieutenant Commander A. R. Behnke gave a series of lectures to which all physicians from the surrounding counties were invited. Dr. George T. Harrell, Jr., of the School conducted Schools on Chemical Warfare in different cities of the state last fall.

The State Board of Health, except for the work connected with the School of Medicine at the University of North Carolina, has not engaged in any postgraduate work.

Respectfully submitted,

William H. Smith, Chairman

President Cobb: Thank you, Dr. Smith.

Gentlemen, this report is before you. Will someone move its acceptance?

Dr. C. F. Strosnider (Goldsboro): I move that it be accepted.

. . . This motion was seconded by Dr. Joseph A. Elliott and was carried.

President Cobb: May we hear now from the Committee on Socialized Medicine? Our Chairman, Dr. F. Webb Griffith, is ill. Will any of the other committee members present give us a report?

. . . No report.

President Cobb: Is there a report from the Committee for Collecting Old Surgical Instruments?

Dr. C. F. Strosnider, member of the Committee: Mr. President, I might say that instruments have been received and have been forwarded to New York.

President Cobb: Thank you, Dr. Strosnider.

If there is no objection, gentlemen, we will order the report received and printed in the minutes.

Next is the report of the Committee on Printing. Dr. McMillan?

Secretary-Treasurer McMillan: Mr. President, I have no report to make except that we have tried to carry out the instructions of the House of Delegates as closely as we could. The programs are here, and you can see them for yourselves.

President Cobb: If there is no objection the report is received, and I ask Dr. McMillan to give the report of the Committee on Public Relations.

. . . No report.

President Cobb: Next is the report of the Committee on Social Security. Dr. George L. Carrington is Chairman.

Dr. George L. Carrington (Burlington): Mr. President, this is the largest committee the Society has, and probably its function is the most indefinite. Neither the president nor the secretary seemed to know exactly what the duties of the committee are. Certainly it overlaps the Committee on Socialized Medicine.

Report of the Committee on Social Security

During the past year there has seemed no occasion for specific action by your committee on social security, and as a consequence there has been no formal meeting of the committee. The chairman, however, has twice written to all members asking for suggestions. The lack of action by your committee does not mean that it is unaware of the tremendous unrest and dangers about us, but that it recognized no opportunity for useful action as a committee. Indeed, action when it comes will probably be for the legislative committee of the State Society and of the national Association. Meanwhile the National Physicians' Committee is doing an excellent job.

There are many indications of the form of things in the offing.

The Farm Security Administration's activities for the ostensible purpose of obtaining low cost medical care for farm groups indicate that farm groups are not the final objective that its sponsors have in view. The building of large, permanent government hospitals during the emergency of war may also give an inkling of the views of the central group in control of the government. The recent allocation of $65,000,000 for the training of nurses is another link in the chain of evidence. The enrollment of medical students in various branches of the armed services, with all expenses paid plus $50.00 per month, is not due to any lack of desirable students available, when all the schools in the nation have been flooded with applications for admission by students who were willing to pay their own expenses as in times past.

When these developments are added to the activities of the public health departments, with their interests in preventive medicine, venereal disease clinics, maternal and infancy welfare clinics, crippled children's clinics, and the care of the tuberculous, the approach of state medicine is seen, even without the recently added care of the wives and children of the members of the armed service. The insane are already, for the most part, under the care of the state. The care of veterans of former wars and members of the Merchant Marine even in times of peace also comes under this heading.

Closely connected here but in a somewhat different category are the various industrial commissions and compensation insurance arrangements of the several states. In this state you are familiar with the set-up. The payments are made by the employers or their insurance carriers, but the administration is under state control.

A third group of mass financed practice is composed of the various insurance plans. Many of them are non-profit organizations such as our own Hospital Saving and Hospital Care Associations. These are rapidly growing in popularity throughout the nation, and deserve our heartiest support. Many of the insurance companies now also are writing all kinds of sickness benefit insurance, with innumerable variations in their provisions for hospitalization, medical, obstetrical and surgical care.

Organized medicine has in general raised its voice for the independent practice of medicine, recognizing, however, certain functions of mass protection as properly the function of the state.

All this means that things are in a state of flux, and that sometime soon, either during the war or shortly thereafter, they are going to crystallize, and having crystallized, will probably retain their form for some time to come or until again re-heated sufficiently.

What should those forms be?

If we rephrase that question thus: "What should control those forms?", we have a starting point; for the answer must be "The public welfare."

The difficulty, however, lies in agreeing on what promotes the public welfare. A world-wide war is now being waged by many peoples with different ideas about that. It is interesting to note, however, that the leaders of the democracies in global warfare have become the advocates of a central philosophy in medical care here.

This does not necessarily mean that they are dishonest in either case. When is it better to have tender beeves that require lush pastures and stall feeding, and when is it better to have a tougher breed that can fend for itself and survive on the dry plains and hills? To what extent is it best to provide any person or people with the things they want,

freely and without exertion on their part? When should such rewards come only as the result of planning, foresight, work, incentive? How far can a people safely for their physical welfare through compassion tamper with the law of the survival of the fit? Or for that matter, how far can a people safely for their spiritual welfare allow that law inexorably to grind out the unfit?

The answers would be simple if we could find unalterable principles to guide us, but it would seem that there is no such thing as Absolute Truth. Christ in his teachings constantly recognized this impasse. One person was told to sell all and give it to the poor, but when another suggested selling an alabaster jar of ointment and giving that to the poor, he was rebuked with the statement that we have the poor with us always.

We as a profession appear to have arrived at an epoch when things are going to change, and during that change only the soundest judgment on our part, together with determined effort and fortuitous circumstances or the grace of God, will allow us to maintain the best of our old system of independent practice and combine it with the better elements of the present liberalizing wave of popular demand.

President Cobb: Thank you, Dr. Carrington. I think even if you had had a meeting of your committee your report could not have been better.

Is there a motion for acceptance?

Dr. Wingate M. Johnson (Winston-Salem): I move that the report be accepted.

. . . This motion was duly seconded and was carried.

President Cobb: The motion is carried, and it is so ordered.

May we hear from our Committee on Syphilis Control? Dr. Knox?

. . . No report.

President Cobb: Next is the report of the Committee on Tuberculosis. Dr. Bittinger?

. . . No report.

President Cobb: May we hear from our Committee on Scientific Work? Dr. Deryl Hart is Chairman.

Dr. Deryl Hart (Durham):

Report of Committee on Scientific Work

Due to shortage of transportation facilities the committee as a body has not met, but the work has been carried on by correspondence. The principal work of the committee has consisted in arranging scientific exhibits for the Annual Meeting. Thanks to the cooperation of Dr. Roscoe D. McMillan, Secretary-Treasurer, the exhibits were obtained from the American Medical Association. No requests were received for exhibit space from members of the Society. Each of the three medical schools put up two scientific exhibits, as follows:

University of North Carolina School of Medicine—"Learning Embryology from Reconstructions and Stereoscopic Photographs."

School of Public Health—"Malaria."

Bowman Gray School of Medicine of Wake Forest College

1. "Recent Advances in Thoracic Surgery" by Drs. H. H. Bradshaw, James O'Neill, and M. D. Bonner.
2. "Medical Genetics" by Drs. William Allan and Nash Herndon.

Duke University School of Medicine

1. "Air Contamination in the Operating Room. A Method of Control and Results Obtained" by the Department of Surgery.
2. "Coagulum Pyelolithotomy" by Dr. John E. Dees.

We feel that much could be gained by increasing the interest in the scientific exhibits in the State Society, and the following recommendations are made:

1. That the exhibits be thrown open to all members of the Society with adequate publicity to enable them to get in their requests with space for personal exhibits.
2. That adequate space for exhibits be provided so that they can all be placed together where they are readily accessible and not have them in the room where the sections are meeting, which makes them inaccessible for a considerable time of the meeting.

It is felt that such a program would be valuable, not only for the man who puts on an exhibit, but to the men who attend the meeting.

Respectfully submitted,
Deryl Hart, Chairman

President Cobb: Thank you very much, Dr. Hart, for the work you have done in creating interest in these scientific exhibits. I think this part of the program could be carried out further in our Society with benefit to all of us.

Gentlemen, what will you do with the report?

Dr. C. F. Strosnider (Goldsboro): I move that it be accepted.

. . . The motion was seconded and carried.

President Cobb: Gentlemen, Dr. Carl Tyner has a word for us.

Dr. Carl V. Tyner (Leaksville): Mr. President and gentlemen: We have a situation in Rockingham County which may not be peculiar to our section, but which has caused a good deal of concern to us there. Last September there was a report to our County Medical Society that an alarming number of abortions were being done just beyond the line, in Virginia, in women who later came to hospitals in our county. These women, for a fee of $50, had a catheter introduced and a little packing put in, and were instructed that if anything happened they were not to return but were to go to a hospital. This was reported to our district attorney, and we were told that if we could get evidence he would do something about it. We could not get evidence. Naturally, no individual doctor wants to take the initiative in a matter of that kind. After consulting our own attorney it was decided to recommend to the State Society that some action be taken. The suggestion was made that we try to get legislation passed, such as there is in New York State, making it obligatory upon physicians to report such matters to the proper authorities.

I suggest that this matter be referred to a special committee, or to an appropriate committee, for such action as the committee may see fit to take.

President Cobb: Thank you, Dr. Tyner.

Does anyone wish to comment on Dr. Tyner's recommendation?

Secretary-Treasurer McMillan: Mr. President, I move you, sir, that Dr. Tyner's report anad recommendation be referred to the Committee on Legislation.

. . . This motion was seconded and was carried.

President Cobb: Is there anything further to come up?

. . . No response.

President Cobb: Gentlemen, we stand adjourned until Wednesday at 2:30 p.m.

. . . Whereupon, at 10:40 p.m., the House of Delegates adjourned.

WEDNESDAY AFTERNOON SESSION
May 12, 1943

The House of Delegates convened for its final session in the Colonial Room of the Hotel Sir Walter on Wednesday, May 12, at 2:30 p.m. The President, Dr. Donnell B. Cobb, presided.

* * * *

President Cobb: Gentlemen, we will come to order for the last meeting of the House of Delegates.

First we should like to hear from the committee that was appointed to consider the President's Message to the House of Delegates and his Address to the Society.

Report of the Committee to Consider the Address of the President

The committee appointed to consider the recommendations of the president in his message to the House of Delegates begs to report:

In regard to:

National Physicians' Committee

Because of the excellent educational work being done by this organization, and because its officers and directors are recognized leaders in our profession, it is recommended that this House of Delegates give it the official approval of our Society.

The committee recommends approval.

Dues

Because a large amount of dues have been refunded to our members who entered the armed forces during the past year, because our Society will not receive from them additional dues during the present emergency, and because we have obligated ourselves to keep them supplied with the **Journal**, our secretary requests and it is hereby recommended that our annual dues be increased from $8 to $10.

The committee recommends approval of the increased dues for the duration of the war.

Delegates to the American Medical Association

It is recommended that our secretary be named a delegate to the House of Delegates of the American Medical Association.

The committee recommends approval.

Journal

It is recommended that the House of Delegates request the Editorial Board to place the "Contents" on the cover of the **Journal**, thereby making the contents more accessible and making available an additional full page for advertising income.

The committee recommends that this be referred to the editorial board for their consideration.

Legislative Cooperation

Definite efforts are being made to alter the practice of medicine. It behooves organized medicine to furnish constructive leadership in guiding any wise and needed changes that may be undertaken in providing medical and hospital service. It is, therefore, recommended that our delegates to the American Medical Association be informed that it is the wish of this Society to support any effort by organized medicine to make available in our national capital, at all times, intelligent, courageous, courteous, and authorized representatives of American medicine, to the end that these authorized representatives offer counsel and provide accurate information to those in whom constitutional authority is vested.

Such guiding cooperation should make possible any wise and necessary expansion of medical service and at the same time maintain the present high standards of efficiency to which American Medicine has risen.

The committee recommends approval.

Respectfully submitted,
Jos. J. Combs, Chairman
Ross S. McElwee
Joseph A. Elliott

President Cobb: Thank you, Dr. Combs, for that report.

What is the wish of the House concerning this matter?

Dr. C. F. Strosnider: I move that the report be accepted.

Dr. C. C. Orr: I second the motion.

President Cobb: It has been moved and seconded that the report be accepted. Is there any discussion?

Dr. Benjamin J. Lawrence (Raleigh): I move that we add "and for six months thereafter" to the recommendation for increasing the dues for the duration of the war.

Dr. Paul H. Ringer: I second the motion.

President Cobb: It has been moved and seconded that the words, "and for six months thereafter", be added to the recommendation increasing the dues for the duration of the war.

. . . The amendment to the report was then voted upon and was adopted, after which the original motion (to accept the report) was voted upon and carried.

President Cobb: We will have the report of the Nominating Committee.

Dr. B. O. Edwards (Asheville):

Your Committee submits the following report:

President-Elect.....Dr. Paul F. Whitaker, Kinston
First Vice President.....Dr. Fred C. Hubbard, North Wilkesboro
Second Vice President.....Dr. George L. Carrington, Burlington
Secretary-Treasurer.....Dr. Roscoe D. McMillan, Red Springs

Councilors:

First District—Dr. H. D. Walker, Elizabeth City
Second District—Dr. T. Leslie Lee, Kinston
Third District—Dr. J. F. Robertson, Wilmington
Fourth District—Dr. N. P. Battle, Rocky Mount
Fifth District—Dr. F. L. Knight, Sanford
Sixth District—Dr. M. D. Hill, Raleigh
Seventh District—Dr. R. M. King, Concord
Eighth District—Dr. M. D. Bonner, Jamestown
Ninth District—Dr. I. E. Shafer, Salisbury
Tenth District—Dr. C. C. Orr, Asheville

Delegate to American Medical Association
—Dr. Roscoe D. McMillan, Red Springs

Alternate Delegates to American Medical Association
—Dr. Wingate M. Johnson, Winston-Salem
—Dr. B. O. Edwards, Asheville
—Dr. Donnell B. Cobb, Goldsboro

Delegates to Medical Society of Virginia, 1943 Meeting
—Dr. W. A. Peters, Elizabeth City
—Dr. H. B. Ivey, Goldsboro
—Dr. Leroy J. Butler, Winston-Salem

Delegates to South Carolina Medical Association
—Dr. Joseph A. Elliott, Charlotte
—Dr. R. L. Fike, Wilson
—Dr. W. T. Parker, Fayetteville

Member of Board of Nurse Examiners
—Dr. J. K. Pepper, Winston-Salem

Member of Board of Trustees of Hospital Saving Association
—Dr. Charles A. Woodard, Wilson

Suggested place of meeting, 1944—Pinehurst

The Committee thought it wise to leave the selection of the date for the meeting to the chairmen of the local committee on arrangements.

President Cobb: Thank you, Dr. Edwards, for the report.

What is the wish of the House in this matter?

Dr. George W. Mitchell: Mr. Chairman, I move that the report of the Nominating Committee be adopted by the House of Delegates.

. . . This motion was seconded by Dr. Strosnider and was carried.

President Cobb: The motion is carried, and it is so ordered.

Is there any unfinished business which we should take up at this time?

. . . No response.

President Cobb: Does anyone have any new business to bring up?

Dr. C. C. Orr (Asheville): Mr. President, you know that in this country there are a great many refugee doctors, and that the scarcity of doctors throughout the country may make it necessary for some of these refugee doctors to be transferred to the places where a doctor is needed to take care of the civilian population. In view of this situation, the Delegates from the Buncombe County Medical Society wish to present the following resolution to the House of Delegates:

"Inasmuch as the State Board of Medical Examiners is and will be constantly urged to relax the rules governing the granting of medical licenses in North Carolina,

"Be It Therefore Resolved That:

"The Medical Society of the State of North Carolina reaffirms its confidence in the State Board of Medical Examiners and again calls upon that Board to maintain its present licensing policy in spite of any pressure to the contrary and to use extreme caution in the granting of medical licenses which could in any way imperil the welfare of the people of the state, the security of the medical profession as a whole, and the interests of the physicians who are serving with the armed forces."

Mr. President, I move the adoption of this resolution.

Dr. B. O. Edwards (Asheville): Mr. President, I highly favor the adoption of that resolution and wish to second the motion.

. . . The motion was carried.

President Cobb: The motion is carried, and it is so ordered.

Dr. Frank A. Sharpe (Greensboro): I wish to express the thanks of the Board of Medical Examiners for this resolution, because the Board has a very difficult job. What I see as a possible danger in the future is that when the doctor shortage becomes acute the Public Health Service of the United States will delegate doctors to go to communities lacking in medical service, regardless of whether they have licenses from that state.

I do think our state medical society ought to do something about that situation, and about getting some of these doctors out of the armed forces that are not needed. The age limit was originally 45, and was then dropped to 38. One doctor in my community who went to the army was 42 years old, and his wife was very sick. That fellow should be taken out of the army, but he will not be unless someone does something about it. I do not believe there is any dearth of physicians for the armed forces; I think there are plenty of able-bodied young men who can go. I think we ought to take this matter up with our legislators in Washington.

Dr. Ben F. Royal (Morehead City): I think our military authorities have decided that in this country our army is going to have ten physicians per thousand men, if present plans are carried out. England has three and one-half per thousand and has found it enough.

Dr. C. C. Orr: I move that this matter be taken up by the Chairman of our Medical Preparedness Committee, Dr. Haywood. If there are men in the army that should be released to go back into these communities where doctors are needed I think probably Dr. Haywood and his committee could do something about it.

Dr. Paul H. Ringer (Asheville): I second the motion.

. . . The motion was then put to vote and was carried.

President Cobb: Is there any other new business?

Dr. W. Houston Moore (Wilmington): Mr. President, I would like to call to the attention of the doctors the high percentage of draftees who are passed by their local medical examining boards, but rejected at Fort Bragg. I know the examination by the local board is only a screening examination, but I know that the majority of the men we examine are working in the shipyard and are able-bodied, strong men. Some of those that have come back have asked me to examine them, and I have done so, and was unable to find a cause for rejection. Here is a clipping from the paper that says forty-six out of fifty-six Negroes sent to Fort Bragg for induction have been rejected. That is about the average we get in Wilmington of rejectees. Some of them have come back to me and asked to be examined again; and I have gone over them carefully, made blood tests and everything, but have not been able to find anything wrong.

President Cobb: Does anyone have a motion to make, so that we can dispose of this matter?

Dr. Wingate M. Johnson (Winston-Salem): There is one suggestion that might be made, I think. Our Society has a Public Relations Committee, and perhaps that Committee could take up this matter. I believe something should be done to offset the impression given by the Governor of North Carolina in his speech yesterday, and by others, that 46 per cent of our young men have one foot in the grave and the other on a banana peel.

Dr. Paul H. Ringer (Asheville): Mr. President, I do not think there is anything this House of Delegates can do about this matter, and I move that it be laid on the table.

Dr. I. E. Shafer (Salisbury): I second the motion.

. . . The motion was carried.

President Cobb: Is there any other new business?

Dr. Newsom P. Battle (Rocky Mount): The Edgecombe-Nash Medical Society, in its April, 1943, meeting, instructed its Delegates to the Medical Society of the State of North Carolina to present to the House of Delegates the question of caring for the indigent sick, in the belief that the profession can handle the matter much more satisfactorily, both for the indigent and for the profession, than can the laity. In Rocky Mount, where there is no appreciable disturbance due to lack of physicians, a large number of people are not getting medical attention who need it; and they are not getting it because the doctors do not want to give it to them. Those who have thought the thing out believe that unless something is done to look after the people who are sick the laity, when the time comes, are going to welcome any steps that might be taken by the state.

Dr. Moore: I should like to state that in my county we have a health department, with a county superintendent of health, and an assistant superintendent. The indigent are taken care of by the health department. They have some district nurses who constantly look after the people who need nursing care. The superintendent of health does not make outside calls, but he does a lot of work in the clinic. The assistant does make outside calls, and in that way the indigent are taken care of. Those indigent persons needing it are given free hospital care.

Dr. C. F. Strosnider (Goldsboro): Mr. President, I move that this matter be referred to our Committee on Social Security.

Dr. C. C. Orr: I second the motion.

. . . The motion was carried.

President Cobb: Is there any other new business?

Dr. Joseph A. Elliott (Charlotte): Mr. President, I have a resolution I wish to offer, as follows:

"Whereas it has been our custom to elect a new board of medical examiners in its entirety every six years, and since it seems advisable to stagger the election of these members, so that at all times there are some members with previous experience on the board,

"Therefore be it resolved that the following changes in the election of the board of medical examiners be adopted:

"That at the next regular election of members of the board of examiners two members shall be elected for a period of two years, two members shall be elected for a period of four years, and three members shall be elected for a period of six years. That thereafter, at the expiration of each member's term, his successor shall be elected for a term of six years.

"If it is found that this resolution conflicts with the Medical Practice Act, the officers and the legislative committee are authorized to seek such changes in the Act as are necessary to conform with the above resolution."

I understand, Mr. President, that there are a number of other resolutions which require changes in the Constitution; and I move you, sir, that this resolution be put with those others and that such steps be taken as will be necessary to put it into effect next year.

Dr. George W. Mitchell (Wilson): I second that motion.

President Cobb: As Dr. Elliott says, gentlemen, this will have to lie on the table until our meeting next year, because it does require a change in the Constitution.

Is there any other new business? Is there anything that anyone wants to bring up for consideration or action by the House of Delegates?

. . . No response.

President Cobb: Gentlemen, that concludes the business before us, and a motion to adjourn is in order.

A Member: I move we adjourn.

. . . The motion was seconded and carried, and the House of Delegates then adjourned **sine die.**

GENERAL SESSIONS

FIRST GENERAL SESSION

Tuesday Morning, May 11, 1943

The first general meeting of the Ninetieth Annual Session of the Medical Society of the State of North Carolina convened at 9:30 a.m. on Tuesday, May 11, 1943 in the ball room of the Sir Walter Hotel in Raleigh, with the Secretary-Treasurer, Dr. Roscoe D. McMillan, presiding.

* * * *

Chairman McMillan: The Ninetieth Annual Session of the Medical Society of the State of North Carolina will please come to order.

We will have the Invocation by Dr. Charles H. Durham of Raleigh.

. . . Dr. Durham then gave the invocation.

Chairman McMillan: It is now my privilege to recognize the President of the Wake County Medical Society, Dr. V. M. Hicks.

Dr. V. M. Hicks (Raleigh): My friends, it is unnecessary for me to say to you that the Wake County Medical Society is delighted to have the meeting here.

Each and every one of our members stands ready to do what he can to make this meeting pleasant for you individually. We are happy to have you and we hope you have a good time.

Chairman McMillan: The Raleigh Academy of Medicine is one of the oldest organizations in this part of the country. I am indeed happy at this time to present its president, Dr. William B. Dewar.

Dr. William B. Dewar (Raleigh): Mr. Chairman and ladies and gentlemen: In behalf of the Raleigh Academy of Medicine I am happy to welcome to the capital city of North Carolina the members of the Medical Society of the State of North Carolina, and its guests.

Each member of the Raleigh Academy of Medicine has been appointed a committee of one to serve you during your stay here. We hope that it will be profitable and worth while.

Chairman McMillan: Ladies and Gentlemen: It becomes my privilege and extreme pleasure to present the gavel to and in turn present to you the President of the Medical Society of the State of North Carolina, Dr. Donnell B. Cobb of Goldsboro.

. . . President Cobb then read his President's Address, which was published in the June issue of the **North Carolina Medical Journal.**

President Cobb: Dr. Lyday, will you introduce our guest speaker?

Dr. Russell O. Lyday (Greensboro): Mr. President, ladies and gentlemen:

During the twenty years that I have known our guest speaker, he has risen to great heights in our profession. He is not only a master of surgery but is also a great teacher of clinical surgery. Among his many attainments and honors I shall only mention a few. He is a member of the American Surgical Association and of the Western and Southern Surgical Association, Editor of Dean Lewis's **System of Surgery,** and Head of the Division of Surgery of the Mayo Clinic.

When our country became involved in the present conflict he was one of the first volunteers for service, and since the early part of the war he has been in the United States Naval Reserve. At the present time he is located at Corona, California.

It gives me great pleasure to introduce to you Captain Waltman Walters of Corona, California, who will speak on the "Treatment of War Casualties".

Captain Waltman Walters (Corona, California): Dr. Lyday, President Cobb, and ladies and gentlemen: First of all, President Cobb, I want to congratulate you on a very excellent address. I think those were very wise words.

. . . Captain Walters then gave his paper.

President Cobb: Captain Walters, we thank you very much for this excellent, timely, and very informative address you have given us. We are grateful to you for coming.

We will now have the report of the Committee on Award of the Moore County Medal for the best paper read in the 1942 session. Dr. Addison G. Brenizer, Chairman of that Committee, is not here because of illness, and I am going to ask Dr. R. O. Lyday to make the presentation.

Dr. R. O. Lyday (Greensboro): Mr. President, and ladies and gentlemen: I had the pleasure of reading the various papers that were submitted to the Committee, and I must say that several were outstanding. It was very difficult for me, at least, to decide which one would be the winner. However, after going over these papers carefully and discussing them together, the committee decided that the medal should go to Dr. E. P. Alyea of Duke Hospital, Durham, for his paper on "The Hormonal Approach to Carcinoma of the Prostate." It becomes my pleasure to present this coveted medal, at the request of Dr. Donnell B. Cobb and the Moore County Medical Society, to Dr. E. P. Alyea.

. . . THE MOORE COUNTY MEDAL FOR THE BEST PAPER READ AT THE 1942 SESSION WAS PRESENTED TO DR. E. P. ALYEA OF DURHAM, NORTH CAROLINA.

President Cobb: I am going to ask our Vice President, Dr. Julian Moore, to take the chair.

Vice President Moore: We will have next the report of the Obituary Committee, Dr. C. A. Woodard, Chairman.

Dr. C. A. Woodard (Wilson): Mr. President and ladies and gentlemen: I will read a list of the doctors who have died in North Carolina during the past year. The names of those affiliated with the Medical Society of the State of North Carolina will be read first.

Dr. Miles B. Abernethy	Reidsville
Dr. William Allan	Winston-Salem
Dr. A. C. Bethune	Raeford
Dr. W. C. Boylston	Charlotte
Dr. G. F. Bullard	Elizabethtown
Dr. Giles M. Flemming	Cleveland
Dr. S. E. Greenwood	Fletcher
Dr. Joseph W. Halford (Hon.)	Lillington
Dr. Seavy Highsmith (Hon.)	Fayetteville
Dr. Eugene B. Howle	Raleigh
Dr. H. B. Hoyle	Manteo
Dr. Robert R. Jones	Winston-Salem
Dr. George W. Kennedy	Beulaville
Dr. Charles E. Kernodle	Elon College
Dr. C. M. Lentz	Albemarle
Dr. Edgar M. Long	Hamilton
Dr. N. B. Mariner (Hon.)	Belhaven
Dr. B. B. Matthews	Shelby
Dr. C. M. McCracken (Hon.)	Fairview
Dr. Paul N. Neal	Raleigh
Dr. A. H. Perry	Wood
Dr. George W. Purefoy	Asheville
Dr. Alexander H. Redding (Hon.)	Cedar Falls
Dr. S. L. Russell	Yadkinville
Dr. Frank L. Sharpe (Hon.)	Statesville
Dr. Louis Cotton Skinner	Greenville
Dr. John Spicer	Goldsboro
Dr. Carl W. Sutton (Hon.)	Richlands
Dr. Joshua Tayloe, II	Washington
Dr. H. H. Utley (Hon.)	Benson
Dr. F. B. Watkins (Hon.)	Morganton
Dr. F. S. Whitaker	Kinston
Dr. Edward Whitehead	Salisbury
Dr. N. G. Williams	Franklin
Dr. J. A. Winstead	Raleigh

I shall now read the names of North Carolina doctors who have died during the year who were not affiliated with the Medical Society.

Dr. Wade H. Atkinson	Selma
Dr. Abbott K. Bailey	Elizabeth City
Dr. Cornelius H. Brantley	Bailey
Dr. L. B. Capehart	Raleigh
Dr. George W. Cardwell	Elizabeth City
Dr. Louis Fuldner	Tryon
Dr. J. M. Harper	Raleigh
Dr. Amy R. Humphrey	Glen Alpine
Dr. R. L. Jenkins	Winston-Salem
Dr. A. J. Jervey, Jr.	Tryon
Dr. D. J. Johnson	Seagrove
Dr. H. B. Marriott	Battleboro
Dr. C. H. McCullock	Lexington
Dr. B. C. Moore	Albemarle
Dr. J. J. Munden	Henderson
Dr. Thomas A. Norment	Lumberton
Dr. L. E. Norfleet	Tarboro
Dr. S. C. Pyle	Charlotte
Dr. W. I. Stockton	Siler City
Dr. W. E. Storm	Wilmington
Dr. W. E. Whittington	Reddies River
Dr. J. P. Wimberly	Rocky Mount
Dr. G. S. Withers	Davidson
Dr. T. H. Wright	Charlotte

These men constituted a cross section of the doctors in the state. They were of various ages, some past the fulfillment of time allotted to man, others at the beginning of their professional careers.

In accordance with their talents they served their fellow men, following the gleam of their aspiration to heal the sick and alleviate the suffering of humanity. Some achieved fame, others trod humbler walks. All sacrificed in line with the traditions of our cause. They are and will continue to be missed in the communities where they served, and many in the wider fields of this society's activities.

Our sorrow is softened by the memory of their loving personalities and unselfish deeds. We are comforted by the fact that the merciful God has gathered their souls to a haven of rest and peace.

We will now stand for one minute and bow our heads in reverence and respect to their memory.

. . . The audience stood in silence.

Vice President Moore: I will ask Dr. E. J. Wannamaker to present the next speaker.

Dr. E. J. Wannamaker (Charlotte): Mr. President, ladies and gentlemen: The Section on the Practice of Medicine is pleased to have as their speaker on this morning's program Lieutenant Colonel Worth B. Daniels of Washington, D. C., Professor of Clinical Medicine at George Washington University. Colonel Daniels is now serving with the armed forces and is Chief of the Medical Service at Fort Bragg.

He will discuss "Sulfadiazine in the Treatment of Meningococcic Meningitis".

Lieut. Colonel Worth B. Daniels (Fort Bragg): Mr. President, ladies and gentlemen: It is a pleasure to be back here in North Carolina among many of my old friends and compatriots.

. . . Lieutenant Colonel Daniels then read his prepared paper.

Vice President Moore: I will ask Dr. E. H. Hand to present the next speaker.

Dr. E. H. Hand (Charlotte): This paper comes from the Section on Public Health and Education, and is entitled "Brucellosis". It will be given by Dr. C. Graham Reid of Charlotte, North Carolina.

. . . Dr. C. Graham Reid then read his prepared paper.

Vice President Moore: Thank you, Dr. Reid, for bringing a paper that will help Dr. Reynolds keep up the high standard of milk control in North Carolina.

. . . President Cobb then resumed the chair.

President Cobb: Ladies and gentlemen: It is my pleasure and honor to present to you His Excellency, the Governor of the State of North Carolina, J. Melville Broughton.

. . . Governor Broughton then addressed the Society.

President Cobb: Governor Broughton, we are very grateful to you for bringing us this most interesting, delightful and stimulating address. We thank you for coming to meet with us.

That concludes our order of business and the first general session stands adjourned.

. . . The first general session was then adjourned.

SECOND GENERAL SESSION

Wednesday, May 12, 1943

The second general session was held at 9:15 a.m. on Wednesday, May 12, 1943. The President, Dr. Donnell B. Cobb, of Goldsboro, presided.

President Cobb: The second general session will come to order. We are ready for the first paper, "Some Rhinolaryngological Tumors of Unusual Clinical Interest," by Dr. V. K. Hart, of Charlotte.

. . . Dr. Hart then read his prepared paper.

President Cobb: Dr. Hart, we thank you for this very delightful presentation of your subject.

Dr. Lenox D. Baker will speak to us on "Operative Treatment of Fracture of the Patella."

. . . The paper of Drs. Lenox D. Baker and Howard J. Schaubel was read by Dr. Baker.

President Cobb: Thank you, Dr. Baker.

Our next speaker will be Dr. J. LaBruce Ward, whose paper is entitled "For Ways That Are Dark and Tricks That Are Vain."

. . . Dr. Ward then read his prepared paper.

President Cobb: We thank you, Dr. Ward, for this most interesting and most original talk.

Will Dr. Paul W. Johnson please present the next speaker?

Dr. Paul W. Johnson (Winston-Salem): Mr. President, and members of the general session: I am happy to introduce Dr. Frank R. Lock, of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

. . . The paper of Drs. Frank R. Lock and Richard C. Forman, Winston-Salem, entitled "Postpartum Sterilization; Indications and Advantages", was then read by Dr. Lock.

President Cobb: Thank you, Dr. Lock.

I will ask Dr. B. C. Willis, of Rocky Mount, to present the guest speaker.

Dr. B. C. Willis (Rocky Mount): Mr. President and fellow members of the State Medical Society: It is indeed a privilege to be here and an honor to introduce the speaker. Rarely is one able to say, as I can, that he has known three generations outstanding in one profession and who have served their country well in time of war. The grandfather, Charles World, was a pioneer in surgery and was surgeon of the Relief Force of Lewellyn during the Sioux War; the father, one of the brightest stars of surgery, was a Surgeon General of the Medical Corps of the United States Army; and the son carries on the tradition of the family and adds luster to its name.

Gentlemen, the distinguished son of distinguished forbears, Lieutenant Colonel Charles World Mayo.

. . . Lieutenant Colonel Mayo then read his paper entitled "One-Stage Combined Abdominoperineal Resection for Malignancy of the Lower Colon, Rectosigmoid, and Rectum," and showed a color movie.

President Cobb: Dr. Mayo, we thank you for being with us and for giving us such a delightful paper and for showing us this picture.

Dr. Mayo didn't tell you, gentlemen, but I should like to tell you that his mortality rate is the lowest of any in the country.

The next paper, "Interstitial Nephritis," is by Dr. Elias S. Faison, of Charlotte.

. . . Dr. Faison then read his prepared paper.

President Cobb: Thank you, Dr. Faison.

Our next order of business is the election of two members of the North Carolina State Board of Health. According to our Constitution and By-Laws, we elect two members of the Board on the second day of our annual session.

The meeting is now open for nominations.

Dr. K. B. Pace (Greenville): Mr. President, I want to nominate Dr. G. Grady Dixon, of Ayden, to succeed himself.

Dr. N. Thomas Ennett (Greenville): I second the nomination, Mr. President.

Dr. G. H. Macon (Warrenton): Mr. President, I wish to nominate Dr. J. LeBruce Ward, of Asheville, for re-election.

. . . This nomination was seconded.

Dr. J. M. Mewborn (Farmville): I move that the nominations be closed and that the two nominees be elected by acclamation.

. . . This motion was duly seconded and carried.

President Cobb: The motion is carried, and Dr. G. Grady Dixon, of Ayden, and Dr. John LaBruce Ward, of Asheville, are re-elected as members of the State Board of Health.

Gentlemen, that concludes our program and our business, and I declare the second general session adjourned. The conjoint session of the Medical Society of the State of North Carolina and the State Board of Health will immediately follow, in this room.

. . . The second general session was then adjourned.

THIRD GENERAL SESSION

Wednesday, May 12, 1943

The third general session convened at 5 p.m. on Wednesday, May 12. The president, Dr. Donnell B. Cobb, of Goldsboro, presided.

* * * *

President Cobb: Gentlemen, we will come to order and will proceed with the business of our third general session.

I want to take this opportunity to express to the members of the Wake County Medical Society our sincere appreciation for the hospitality which we have enjoyed here in Raleigh and for the constant assistance which you have given us. You have made it possible for us to have a very delightful and successful meeting. To you, Dr. Hicks, as Chairman of the Local Committee on Arrangements, I wish to express my particular appreciation. Will you please convey to your Society our expression of thanks for their hospitality?

Is there any unfinished business, gentlemen?

. . . No response.

President Cobb: Is there any new business?

. . . No response.

President Cobb: We will have the report of the House of Delegates. Dr. McMillan.

. . . Secretary-Treasurer McMillan then read the report of the House of Delegates, which upon motion duly made and seconded was carried.

President Cobb: The motion is carried, and the report is accepted, and it is so ordered.

Now we come to one of the most important and most pleasant items of business on our program—the installation of our new president. I am going to ask Dr. Vernon to come up to the front.

. . . Dr. Vernon came to the platform.

President Cobb: Ladies and gentlemen, in my memory the choosing of our president has never given more general satisfaction than has the election of Dr. Vernon. Certainly there is no one among us who is more respected or who has a wider circle of friends.

Jimmie, in handing over to you this gavel, together with the obligations and duties and pleasures of this office, I do so with the absolute confidence that we have chosen wisely and that you will lead us well.

President James W. Vernon: Members of the Medical Society of the State of North Carolina, ladies and gentlemen, guests and friends: I hardly recognized what the words used by President Donnell Cobb meant or to whom he could be referring.

. . . Dr. Vernon gave his inaugural address, which was published in the June issue of the **North Carolina Medical Journal.**

President Vernon: I am very happy that my first official duty is so pleasant. At this time it is my duty and my very great pleasure to call before you and present to you our President-Elect, Dr. Paul F. Whitaker, of Kinston, who will please come forward and show himself and say something to us.

Dr. Paul F. Whitaker (Kinston), President-Elect: President Vernon, fellow members of the North Carolina State Medical Society, ladies, and gentlemen: It is difficult for me to express how deeply grateful I am to you for conferring on me this high honor. I consider it not only an honor but a manifestation of your friendship and your trust; and it shall be my purpose, during the coming year, under the tutelage of Dr. Vernon, to familiarize myself with the problems and responsibilities of this office.

I come from a family of doctors: my father and uncle, a brother, and a cousin were doctors; I have a nephew recently graduated, and another one now taking his first year in medicine. With this background I think I somewhat appreciate the traditions and high standards of medical practice.

While I am deeply appreciative of this honor, I am also acutely aware of the manifold problems that are facing the medical profession in these troubled times and the probably still more troubled years in the immediate future. I shall need your counsel, your advice, your loyalty; and I know I can count upon them.

From the bottom of my heart I thank you, and I hope to justify your confidence.

President Vernon: I believe that ends the business of this session. I shall ask the Secretary to declare the Ninetieth Annual Session adjourned.

Secretary-Treasurer McMillan: Mr. President, I now declare the Ninetieth Annual Session of the Medical Society of the State of North Carolina adjourned **sine die.**

. . . Thereupon, at 5:20 p.m., the Society adjourned.

BANQUET SESSION

Tuesday, May 11, 1943

The banquet of the Medical Society of the State of North Carolina was held in the Virginia Dare Ballroom of the Hotel Sir Walter, Raleigh, N. C., on Tuesday, May 11, 1943, beginning at 7 p.m. Dr. Paul H. Ringer, of Asheville, acted as toastmaster; and the invocation was given by Dr. Wingate M. Johnson, of Winston-Salem.

Presentation of President's Jewel

Toastmaster Ringer: As you probably know, the outgoing president of this society is presented with the president's jewel by the incoming president. Heretofore this presentation has been made at the morning meeting and has been almost unhonored and unsung. But this time we decided to postpone it for such a gathering as this and to make an event of it.

At the present time our incoming president, Dr. James W. Vernon, will bestow the president's jewel upon our outgoing president, Dr. Donnell B. Cobb. Dr. Vernon.

Dr. James W. Vernon (Morganton), President-Elect: Mr. Toastmaster, members of the State Medical Society, and guests: I have a very happy duty and privilege tonight, and I take great pleasure in performing this duty for the Society. Your toastmaster has made my speech; and I am very glad, because I was wondering how I might be able to say some fitting words for this happy occasion. As he has told you, it is our custom to present to our outgoing president a medal, which is a token of affection and love from this Society and which also signifies our appreciation for his service.

I doubt very much that any president of our Society has ever served under such difficult circumstances and led us so well as has Donnell Cobb of Goldsboro. (Applause.) I am glad for that response, for I knew that you thought that, too.

Members of the Society, ladies and gentlemen, may I say to you again that it gives me great pleasure to present to our distinguished president, Donnell Cobb, this medal, representing our appreciation to him and our love and affection for him.

Most of the fine things in the development of our president's character and work have been brought about, I think, in large measure, if not altogether, by his distinguished and beloved father, Dr. William H. Cobb, of Goldsboro. At this time I am going to ask Dr. Cobb to take to his son, Donnell, this medal.

Dr. Donnell B. Cobb (Goldsboro), President: Thank you, Dr. Vernon.

Mr. Toastmaster, members of the Society, and guests: Having been privileged during the last year to go to many sections of the state, to make many new contacts and, I hope, many new friends, and to develop many new interests by attending the various meetings held throughout the state, and to hear my fellow physicians discuss their work and their problems and their experiences is indeed rich compensation for performing the very pleasant duties of this office. That, in addition, I should receive this jewel simply means that I have been overpaid. I appreciate it tremendously and appreciate it even more since it comes to me from you through the hands of my good friend, Jimmie Vernon.

Having been elected your president is, of course, the greatest professional honor that could come to me. Even more than that I appreciate the confidence and friendship which election to this office implies. I have done so little to deserve it. I shall always cherish the memory of your goodness to me and the honor you have done me. I thank you.

CONJOINT SESSION
of the
MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA
and the
NORTH CAROLINA STATE BOARD OF HEALTH

Wednesday, May 12, 1943

The Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health was held in the Virginia Dare Ballroom of the Hotel Sir Walter, Raleigh, North Carolina, on Wednesday, May 12, 1943, at twelve o'clock noon, with Dr. S. D. Craig of Winston-Salem, President of the State Board of Health, presiding.

President Craig: The Conjoint Session of the Medical Socetiy of the State of North Carolina and the North Carolina State Board of Health will come to order.

Your State Board of Health has had more perplexing questions to be solved during the last year than it has ever had before. This has been due largely to the great number of Army, Marine, Naval, and Air Bases located within our state. We have felt more or less responsible for sanitation, mosquito control, and other problems around these camps.

Another matter that has caused us much worry is the milk situation. We have endeavored to keep up our standards and requirements, knowing that if trouble should arise from bad milk we should be to a certain degree responsible. I know it will be news to many of you that the milk supplied to some of these camps comes from Virginia, New York, and Minnesota. The Governor of North Carolina has been anxious for us to keep our high requirements but, at the same time, to encourage an increased production of milk in North Carolina, so that it will not be necessary to go out of the state for milk.

Dr. Reynolds, our Secretary, and Dr. Cooper, our Assistant Secretary, have done a good job. In fact, the staff and all employees connected with the department have been very loyal and have done a great deal of overtime work.

We will now hear our Secretary's report, by Dr. Reynolds.

. . . Dr. Reynolds then read his summarized report of the activities of the State Board of Health during the last year and filed the reports of the various departments.

President Craig: Gentlemen, you have heard the Secretary's report. What will you do with it?

A Member: I move that it be accepted.

. . . This motion was seconded and carried.

President Craig: Is there other business to come before the Conjoint Session before we adjourn?

. . . No response.

President Craig: Our business is completed, and I now declare the Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health adjourned.

. . . The meeting was then adjourned.

ALPHABETICAL LIST OF FELLOWS FOR 1943 WITH POSTOFFICE ADDRESSES

Honorary Members

Name	*Address*
Paul V. Anderson, M.D.	Richmond, Va.
Wm. Seaman Bainbridge, M.D.	New York N. Y.
James K. Hall, M.D.	Richmond, Va.
Stuart McGuire, M.D.	Richmond, Va.
R. L. Payne, Jr., M.D.	Norfolk, Va.
Fred W. Rankin, M.D.	Lexington, Ky.
Milton J. Rosenau, M.D.	Chapel Hill, N. C.
William Sharpe, M.D.	New York, N. Y.

Fellows and Honorary Fellows

*Abernethy, Olivia	Elkin
*Adair, William Edward	Erwin
*Adams, Carlton Noble, ObG	Winston-Salem
Adams, Fletcher Ruff, PH	Concord
Adams, James Robert, Pd	Charlotte
Ader, Otis Ladeau, GP	Walkertown
Albright, Samuel Lee	Belmont
Alexander, George Thomas	Thomasville
Alexander, James Moses, I	Charlotte
Alexander, James Ramsey (Hon.)	Charlotte
Allen, Charles Insley, S	Wadesboro
*Allen, George Calvin, OALR	Lumberton
Allen, Joseph A. (Hon.) GP	New London
Allen, Mitchell Hurst, GP	Cramerton
Allgood, Reese Alexander, GP	Fayetteville
*Alyea, Edwin Pascal, U	Durham
*Anders, McTyeire Gallant (Hon.), Pd	Gastonia
*Anderson, Charles Alexander (Hon.)	Burlington
*Anderson, Richard Speight, S	Rocky Mount
Anderson, Richmond Karl	Chapel Hill
*Anderson, William Banks, OALR	Durham
*Anderson, Wade Hampton (Hon.) PH	Wilson
*Andrew, John Montgomery	Lexington
*Andrew, Lacey Allen, Jr., U	Winston-Salem
Angel, Edgar, S	Franklin
Angel, Furman, S	Franklin
Anthony, James Edward (Hon.)	Kings Mountain
Anthony, William Augustus, GP	Gastonia
Archer, Isaac James (Hon.) T	Black Mountain
*Arena, Jay Morris, Pd	Durham
*Arney, William Charles, GP	Morganton
Ashby, Edward Clayton, S	Mt. Airy
*Ashby, Julian Warrington, PN	Raleigh
Ashe, John Rainey, Pd	Charlotte
Ashford, Charles Hall, GP	New Bern
Austin, DeWitt Ray	Charlotte
*Austin, Frederick Da Costa, Jr.	Charlotte
*Avery, Edward Stanley, I	Winston-Salem
*Aycock, Francis Marion, GP	Princeton
Aydlette, Joseph P. (Hon.)	Earl
*Ayers, James Salisbury, GP	Clinton
Baier, George Frederick, Jr., GP	Asheville
*Bailey, Clarence Whitfield, OALR	Rocky Mount
Bain, Eugene Anthony	Gastonia
*Baker, Horace Mitchell, S	Lumberton
*Baker, Lenox Dial, Or	Durham
Baker, Roger Denio, Path	Durham
*Baker, Thomas Williams, I	Charlotte
Bandy, William Gaither, GP	Lincolnton
Bangle, James Alexander	Concord
Banner, Charles Whitlock (Hon.) OALR	Greensboro
*Barbee, George S. (Hon.)	Zebulon
Bardin, Robert Malcolm, GP	Roanoke Rapids
*Barefoot, Graham Ballard, Path & R	Wilmington
Barham, Berlin Francis	Mayodan
Barker, Christopher Sylvanus	New Bern
Barkwell, John H	Weeksville
Barnes, Dempsey	Asheboro
*Barnes, Jesse Thomas	Asheboro
*Barnes, Tiffany	Asheboro
Barnhardt, Albert Earl	Kannapolis
*Barrett, John Milton, Ob	Greenville
*Barrier, Henry Webster, PN	Concord
Barron, Archibald Alexander (Hon.) PN	Charlotte
*Basnight, Thomas Gray (Hon.) GP	Stokes
*Bass, Beaty Lee	Lenoir
*Bass, Harris Hardwell, Ob	Henderson
Bass, Spencer Finnin (Hon.) GP	Tarboro
Battle, Margaret White, Ob	Rocky Mount
*Battle, Newsom Pittman, S	Rocky Mount
Baxter, Oscar Dixon, R	Charlotte

* Present at 1943 meeting.

Name	*Address*
*Baylin, George Jay	Durham
*Beale, Seth McPherson, Ob	Elkin
*Beall, Louis Girardeau (Hon.) NP	Black Mountain
*Beam, Hugh Martin	Roxboro
Beam, Russell S., OALR	Lumberton
*Beasley, Edward Bruce, GP	Fountain
Beavers, James Wallace, GP	Kernersville
Beckwith, Robert Payne, Pd	Roanoke Rapids
Belcher, Cecil Cullen, U	Asheville
Belk, George W.	Gastonia
Bell, Andrew E. (Hon.) GP	Mooresville
*Bell, Felix Ortan	Burlington
*Bell, George Erick, ObG	Wilson
Bell, L. Nelson, S	Swannanoa
*Bell, Orville Earl	Richlands
Bell, Spencer Alexander	Hamptonville
Bellamy, Robert Hartlee (Hon.) GP	Wilmington
Belton, Joseph Franklin	Winston-Salem
Bender, John Robert, U	Winston-Salem
*Bennett, Ernest Claxton	Elizabethtown
Bennett, Joseph Hammond (Hon.) GP	Wadesboro
Bennett, William Lewis	Burnsville
Bentley, James Gordon, GP	Pores Knob
*Berryhill, Walter Reece, I	Chapel Hill
*Best, Deleon Edward, C	Goldsboro
*Best, Glenn Eben, GP	Clinton
Best, Henry Blount (Hon.) GP	Wilson
*Bethel, Millard Baimbridge, PH	Concord
Bigger, John Dinsmore	Swannanoa
Biggs, Montgomery Herman (Hon.) S	Rutherfordton
Bigler, Victor Louis, I	Albemarle
*Billings, Gilbert M., OALR	Morganton
*Bitting, Numa Duncan (Hon.) S	Durham
*Bittinger, Samuel Moffett, T	Black Mountain
*Bizzell, Marcus Edward, OALR	Goldsboro
*Bizzell, Thomas Malcolm	Goldsboro
*Black, George William, N	Charlotte
Black, John Riley, Jr.	Whiteville
*Black, Oscar Reid	Landis
Blackshear, Thomas Joseph, OALR	Wilson
*Blackwelder, Verne Hamilton, S	Lenoir
Blair, Andrew, I	Charlotte
Blair, James Luther, ObG	Gastonia
Blair, J. Samuel, Ob	Gastonia
*Blair, Mott Parks (Hon.) GP	Marshville
*Blanchard, Thomas W.	Hobbsville
Bliss, Forrest Edgar, S	Lawndale
Block, Milton Edward	Lexington
Blowe, Ralph Boyd	Weldon
Blue, Alex McNeill	Carthage
*Blue, Waylon, GP	Jonesboro
Boice, Edmund Simpson, S	Rocky Mount
Bolt, Conway Anderson, GP	Marshville
*Bonner, John Bryan, GP	Aurora
Bonner, John Bryan Havens, T	Elizabeth City
*Bonner, Kemp Plummer Battle (Hon.) Pd	Morehead City
*Bonner, Merle Dumont, T	Jamestown
*Bonner, Octavious Blanchard, OALR	High Point
Booker, Edward Nelson, GP	Selma
Boone, William Henry (Hon.) GP	Durham
Boone, William Waldo, GP	Durham
*Bost, Thomas Creasy, S	Charlotte
Bostic, William Chivous (Hon.) Ind	Forest City
*Bowen, James Poore, S	Aberdeen
Bowers, Marvin Arthur, GP	Winston-Salem
Bowles, Francis Norman, ObG	Durham
Bowling, Edwin Holt (Hon.) GP	Durham
*Bowman, Earle Ledbetter, GP	Lumberton
*Bowman, Hugh Edgar (Hon.)	Aberdeen
Brackett, William Ernest	Hendersonville
Braddy, Wade Hampton (Hon.)	Burlington
*Bradford, Wallace Brown, ObG	Charlotte
Bradford, William Ziegler, ObG	Charlotte
*Bradshaw, Howard Holt, S	Winston-Salem
Bradshaw, Thomas Gavin, GP	Wilson
Bradsher, James Sidney, I	Stovall
Brandon, Henry Allen, GP	Yadkinville
Brandon, Wesley Otis	Concord
Brantley, Hassell (Hon.) OALR	Spring Hope
Brantley, Julian Chisholm, GP	Spring Hope
Brantley, Thomas H., U	Concord
Bray, Thomas Latham	Plymouth
Brenizer, Addison Gorgas (Hon.) S	Charlotte
*Brewer, James Street, GP	Roseboro
*Brian, Earl Winfrey, I	Raleigh
*Bridger, Dewey Herbert	Bladenboro
*Brinkley, Harvey Meares, GP	Durham
Brinn, Thomas Preston	Hertford
*Bristow, Charles Oliver, Pd	Rockingham
Britt, James Norment, GP	Lumberton
Britt, Tilman Carlisle, PH	Mt. Airy
*Brockmann, Harry Lyndon, S	High Point
*Brooks, Frederick Philips, GP	Greenville
Brooks, Harry Eskridge, GP	Clayton
*Brooks, Ralph Elbert, U	Burlington
Brookshire, Harley Gaskill (Hon.)	Asheville
*Broughton, Arthur Calvin, Jr., GP	Raleigh
*Broun, Matthew Singleton, OALR	Roanoke Rapids
Brown, Clarence E.	Faith
*Brown, Clyde Russell	Goldsboro
Brown, George W. (Hon.) GP	Raeford
*Brown, James Arthur	Banner Elk
Brown, James Stevens, Sr. (Hon.) GP	Hendersonville
Brown, Kermit English, ObG	Asheville
*Brown, Victor Emanuel	Williamston
Brownsberger, Ethel May, GP	Biltmore
Brownsberger, John Failor, S	Fletcher
Bryan, Lorenzo Dow (Hon.)	Sneads Ferry
Buchanan, Luther Thomas, GP	Laurinburg
Buckner, James Marion (Hon.) GP	Swannanoa
Buffalo, J. S. (Hon.) GP	Garner
*Bugg, Charles Richard, Pd	Raleigh
*Buie, Roderick Mark, PH	Greensboro
*Bulla, Alexander Chester, PH	Raleigh
*Bullitt, James Bell, Path	Chapel Hill
Bullock, Duncan Douglas, ObG	Rowland
Bulluck, Ernest Southerland (Hon.) S	Wilmington
*Bunch, Charles Pardue	Sturgills
Bunn, James Pettigrew, GP	Rocky Mount
Burleson, William Brown, GP	Plumtree
Burns, Joseph Eugene, Pd	Concord
Burt, Samuel Perry (Hon.) GP	Louisburg
Burton, Claude Naylor, ObG	Asheville
Burton, Herbert Walker	Badin
Busby, George Francis, S	Salisbury
Busby, Julian	Kannapolis
Busby, Julian Goode (Hon.)	Salisbury
*Butler, Leroy Jefferson, Pd	Winston-Salem
Butt, Romulus Brown	Marion
*Byerly, Andrew B. (Hon.)	Cooleemee
Byerly, Frederic Lee	Winston-Salem
Byerly, Wesley Grimes, PH	Lenoir
*Byrd, William Carey	Angier
Caddell, Grover C., GP	Hoffman
Caldwell, Lawrence McClure	Newton
Caldwell, Robert Manfred, Ob	Mt. Airy
Callaway, Jasper Lamar, D	Durham
*Campbell, Alton Cook (Hon.) GP	Raleigh
Candler, Charles Z. (Hon.) GP	Sylva
*Cardwell, D. Willard, GP	Greensboro
Carlton, Romulus Lee (Hon.) PH	Winston-Salem
Carmichael, Thaddeus Wirt, Pd	Rowland
*Carpenter, Coy Cornelius, Path	Winston-Salem
Carr, Catherine C.	Biltmore
Carr, Eugene Morrison, I	Asheville
Carr, Mathew Lee, S	La Grange
*Carrington, George Lunsford, S	Burlington

Present at 1943 meeting.

Name	Address
Carroll, Fountain Williams, GP	Hookerton
Carroll, Ruybetta Charman	Durham
*Carson, Merl John	Raleigh
Carter, Francis Bayard, ObG	Durham
Carter, Henry Walton (Hon.)	Washington
*Carter, Thomas Leslie	Gatesville
*Carter, Warren Dallas, PH	Morven
*Casstevens, John Claude, GP	Clemmons
Casteen, Kenan, OALR	Leaksville
Castellow, Cola, S	Windsor
Cater, Clinton Duncan	Greensboro
Cathell, James Luther, S	Lexington
*Caveness, Zebulan Marvin (Hon.) Pr	Raleigh
*Caviness, Verne Strudwick, I	Raleigh
Chandler, Leon David	Gastonia
Chaplin, Steenie Charles	Columbia
Chapman, Edwin James, ALR	Asheville
Chester, Pinkney Jones, OALR	Southern Pines
*Cheves, William Grey	Raleigh
Clark, Badie Travis, S	Wilson
*Clark, DeWitt Duncan	Clarkton
*Clark, Milton Stephen, Ob	Goldsboro
*Clary, William Thomas, ObG	Greensboro
*Clay, Earl Lewis, I	Oxford
*Clayton, Milton Burns, OALR	Statesville
Clement, Edward Buehler (Hon.) OALR	Salisbury
Cliff, Benjamin Franklin	Fallston
Clinton, Roland Smith	Gastonia
Clyatt, Claude Eugene	Denton
*Cobb, Donnell Borden, S	Goldsboro
*Cobb, William Henry (Hon.)	Goldsboro
Cochrane, James Daniel	Newton
Cocke, Charles Hartwell (Hon.) I	Asheville
Cocke. Jere Ellis (Hon.)	Asheville
Codington, Herbert Augustus, S	Wilmington
Coffey, James Cecil, Ind	Salisbury
Cole, Herman Alphonso	Roanoke Rapids
*Cole, Walter Francis (Hon.) Or	Greensboro
*Coleman, George Stephenson (Hon.) Pr	Raleigh
Coleman, Howe Reese	Wilmington
Coleman, Levy Aticus, OALR	Salisbury
Collings, Ruth Mary, GP	Greensboro
Combs, Fielding, ALR	Winston-Salem
*Combs, Joseph John, T	Raleigh
*Cook, Henry Lilly, Jr., OALR	Greensboro
*Cook, Joseph Lindsay, PH	Greensboro
*Cook, William Eugene	Sanatorium
*Cooke, Grady Carlyle, S	Winston-Salem
*Cooke, Quinton Edwin, GP	Murfreesboro
*Cooper, Albert Derwin, A	Durham
*Cooper, George Marion (Hon.) PH	Raleigh
*Coppedge, Thomas O., PH	Nashville
*Coppridge, William Maurice, U	Durham
*Corbett, Clarence Lee	Dunn
Corbett, James Patrick	Swansboro
Cornwell, Abner Milton, S	Lincolnton
Corpening, Flave Hart	Horse Shoe
Corpening, Oscar J. (Hon.)	Granite Falls
Costner, Walter Vance, Pd	Lincolnton
*Couch, Vanderbilt Franklin, OALR	Winston-Salem
Covington, James Madison, Jr.	Wadesboro
Covington, John Malloy Clayton, OALR	Roanoke Rapids
*Cox, Grover Steadman, Pd	Tabor City
*Cozart, Samuel Rogers, I	Greensboro
*Cozart, Wiley Simon, GP	Fuquay Springs
Craddock, Alva Brown, I	Asheville
Cranford, James Frank	Gastonia
Cranmer, John B. (Hon.)	Wilmington
*Craven, Franklin Clyde	Asheboro
Craven, Jean Davidson, Pd	Lexington
Craven, Thomas W.	Huntersville
Craven, William Wilhelm (Hon.)	Charlotte
*Crawford, Robert Hope, S	Rutherfordton
Crisp, Sellers Mark, Ob	Greenville
Cromartie, Robert S. (Hon.) PH	Elizabethtown
Croom, Gabe Holmes	Asheville
*Crouch, Auley McRae, Pd	Wilmington
Crouch, Thomas Dalton	Stony Point
Crow, Samuel Leslie, I	Asheville
Crowell, Lester Avant, Jr., I	Lincolnton
Crowell, Lester Avant, Sr. (Hon.) S	Lincolnton
Crump, George Curtis, I	Asheville
*Crumpler, Amos Gilmore, GP	Fuquay Springs
*Crumpler, James Fulton, Pd	Rocky Mount
*Crumpler, Paul (Hon.) GP	Clinton
Cummings, Michael Penn	Reidsville
*Currie, Daniel Smith (Hon.) GP	Parkton
*Cutchin, Joseph Henry, GP	Whitakers
*Dale, Grover Cleveland	Goldsboro
*Dalton, Bennie Booker, GP	Liberty
Dalton, William Nicholson (Hon.) GP	Winston-Salem
*Daniel, Nathaniel Chesley (Hon.) Pd	Oxford
*Daniel, Walter Eugene, U	Charlotte
Daniels, Oscar Carroll (Hon.) OALR	New Bern
Darden, Douglas Beaman	Stantonsburg
*Darden, Oscar Bruton, PN	Richmond, Va.
Daughtridge, Arthur Lee, R	Rocky Mount
*Davenport, Carlton Alderman	Hertford
*Davidian, Vartan A., S	Smithfield
Davidson, John E. S. (Hon.) Oph	Charlotte
Davis, Charles Burdis, GP	Wilmington
Davis, James Matheson, Pd	Wadesboro
Davis, James Wagner, S	Statesville
*Davis, Rachel Darden, ObG	Kinston
Davis, Thomas W. (Hon.) OALR	Winston-Salem
*Davison, Wilburt Cornell, Pd	Durham
Dawson, William Earl, GP	Hookerton
Deans, Arthur Wood, GP	Battleboro
De Armon, John McCamie (Hon.)	Charlotte
*Dees, John Essary, U	Durham
*Dees, Ralph Erastus (Hon.) S	Greensboro
*Dees, Rigdon Osmund (Hon.) S	Greensboro
*Dees, Susan Coons, Pd	Durham
DeLoatch, Mahlon Wingate	Tarboro
Denton, Ausley Leo	Castalia
Derbyshire, Robert Cushing	Albuquerque, N. Mex.
*Dewar, William Banks, I	Raleigh
*Dick, MacDonald	Durham
Dickinson, Elijah Thomas (Hon.) ALR	Wilson
*Dickinson, Kenneth D., Ob	Raleigh
*Dickson, Malcolm Shields, GP	Oakboro
Dillard, George Penn	Draper
*Dixon, George Grady, GP	Ayden
Dixon, Guy E. (Hon.) PN	Hendersonville
Dixon, William Harvey, Pr	Rocky Mount
*Doffermyre, Luther Randolph	Dunn
*Donnelly, Grant Lester, Pharm	Chapel Hill
Dosher, William Sterling, ObG	Wilmington
Dowling, Judson Davie, Jr.	Mt. Olive
*Drake, Benjamin Michael, PH	Carthage
*Drummond, Charles Stitt, Pr	Winston-Salem
*Duckett, Virgil Howard, GP	Canton
*Duffy, Charles, Pd	New Bern
Duffy, Richard Nixon (Hon.) S	New Bern
*Duncan, Stacy Allen, GP	Benson
Dunlap, Lucius Victor (Hon.) GP	Albemarle
*Dunn, Richard Berry, ObG	Greensboro
Durham, Carey Winston, S	Greensboro
Dyer, John Wesley	High Point
Eagle, James Carr	Spencer
Eagle, Watt Weems, OALR	Durham
Eagles, Charles Sidney	Saratoga
*Earle, Jesse Burns, GP	Siler City
*Earp, Raymond Elmore	Selma
Easley, Eleanor Beamer, ObG	Durham
*Easom, Herman Franklin, T	Wilson
Eaves, Rupert Spencer	Rutherfordton
Eckel, O. F. (Hon.) Anes	Asheville

* Present at 1943 meeting.

Name	*Address*
Eckerson, Charles Neil	Troy
*Edwards, Bertie Oscar (Hon.) I	Asheville
Edwards, Forest D., Ob	Lawndale
Edwards, Vertie Edward, GP	Stokesdale
*Eldridge, Charles Patterson	Raleigh
*Elias, Lewis Weimer (Hon.) Pd	Asheville
*Eller, Albert J. (Hon.) PH	Wilkesboro
*Ellington, Amzi Jefferson, OALR	Burlington
*Ellinwood, Everett Hews, Ob	Snow Hill
*Elliot, Avon Hall, PH	Wilmington
Elliott, George Douglas, GP	Fair Bluff
*Elliott, Joseph Alexander, D	Charlotte
*Elliott, William Forrest, OALR	Lincolnton
*Elliott, William McBrayer	Forest City
English, Edwin Strassbridge	Brevard
*Ennett, Nathaniel Thomas, PH	Greenville
Ervin, John Witherspoon, GP	Morganton
Evans, John Ebenezer, S	Wilmington
Ewers, Edwin Patterson	Warsaw
*Faison, Elias, I	Charlotte
Farrington, Reno Kirby, S	Thomasville
Farrior, James William	Warsaw
*Farthing, John Watts, S	Wilmington
*Fassett, Burton Watson (Hon.) OALR	Durham
*Faulk, James Grady, S	Monroe
Fauntleroy, Joseph Whittlesey, Ob	Zirconia
Fearing, Isaiah (Hon.)	Elizabeth City
Fearrington, James Cornelius Pass, I	Winston-Salem
Feldman, Leon Henry, I	Asheville
Fergus, Leroy Clark, S & GP	Southport
Ferguson, George Burton, OALR	Durham
Ferguson, Robert Thrift, G	Charlotte
*Ferneyhough, William Todd, OALR	Reidsville
Fetner, Lawrence Merrill	Lenoir
Fetzer, Paul Williams	Reidsville
Field, Bob Lewis, GP	Salisbury
*Fields, James Armstead	Raleigh
*Fields, Leonard Earl, GP	Chapel Hill
Fike, Ralph Llewellyn, GP	Wilson
*Finch, Ollie Edwin, I	Raleigh
Fink, Emma Sloop, GP	Crossnore
Finkelstein, Harold, S	Durham
Finney, Jonathan Richard	Boonville
*Fitzgerald, Charles Edmund	Farmville
*Fitzgerald, John Dean, S	Roxboro
*Fitzgerald, John Herbert, OALR	Smithfield
Fitzgerald, John Hill, Jr.	Lincolnton
*Flagge, Philip Wesley (Hon.) GP	High Point
Fleetwood, Joseph Anderton	Conway
*Fleming, Fred Henry, GP	Coats
*Fleming, Major Ivy, R	Rocky Mount
*Fleming, William LeRoy, PH	Chapel Hill
Flippin, James Meigs (Hon.) G	Pilot Mountain
Flippin, Samuel T. (Hon.)	Siloam
*Flowers, Charles Ely, ObG	Zebulon
Floyd, Lawrence Dowe (Hon.) GP	Fair Bluff
Floyd, William Russel, S	Concord
*Forbes, Thomas Earl, GP	Madison
Forbus, Wiley Davis, Path	Durham
*Ford, David Emerson, PH	Washington
*Formy-Duval, Thurston, GP	Whiteville
Fortescue, William Nicholas	Hendersonville
Fortune, Alex Fletcher (Hon.) GP	Greensboro
*Foster, Howitt H., GP	Norlina
*Foster, John Franklin, Pd	Sanford
*Fox, Frances Hill	Durham
Fox, Herbert J., I	Durham
*Fox, Powell Graham, U	Raleigh
*Fox, Robert Eugene, PH	Raleigh
*Franklin, Ernest Washington, ObG	Charlotte
*Franklin, Robert Benjamin Clinton, PH	Mt. Airy
Freeman, Jere David, OALR	Wilmington
*Freeman, Robert Herman	Raleigh
Freeman, William Talmage, Pd	Biltmore
Fresh, William Maurice, OALR	Hickory
Fritz, Jacob Luther, ALR	Asheboro
Fritz, Oliver Grady, GP	Walkertown
Frizzelle, Mark T. (Hon.) GP	Ayden
Frye, Glenn Raymer, S	Hickory
Fulp, James Francis	Stoneville
Futrell, Lokie Melton	Murfreesboro
Gage, Lucius Gaston, I	Charlotte
Gambill, Ira Samuel	Elkin
Gamble, John Reeves (Hon.) S	Lincolnton
Gambrell, Grover Cleveland, PH	Lexington
Garren, Robert Hall (Hon.) OALR	Monroe
*Garrenton, Connell, T	Bethel
Garrett, Frank Bernard, OALR	Rockingham
Garrison, Ralph Bernard, Ob	Hamlet
Garriss, Frank Henry, PH	Lewiston
Garvey, Fred Kesler, U	Winston-Salem
Garvey, Robert Robey, U	Winston-Salem
*Gaskin, John Stover, GP	Albemarle
Gaskin, Lewis Roy, GP	Albemarle
*Gaskin, Madge Baker, G	Albemarle
Gaul, John Stuart, Or	Charlotte
*Geddie, Kenneth Baxter, Ob	High Point
*Gentry, George W. (Hon.)	Roxboro
Gibbon, James Wilson, S	Charlotte
Gibbon, Robert Lardner (Hon.) S	Charlotte
Gibbs, Emmett Wyattman	Shelby
*Gibson, Lauren Osborne, ObG	Statesville
*Gibson, Milton Reynolds (Hon.) OALR	Raleigh
Gilbert, Edward Lee	Winston-Salem
Gill, Joseph Armstrong	Elizabeth City
Gilmore, Clyde Manly, I	Greensboro
*Gilmour, Monroe Taylor	Charlotte
Gilreath, Frank Hackett (Hon.)	N. Wilkesboro
Glascock, Joy Harris (Hon.) GP	Greensboro
*Glenn, Channing	Elizabethtown
Glenn, Charles Arthur, S	Gastonia
Glenn, Charles Foster, S	Rutherfordton
*Glenn, Henry Franklin, Jr., GP	Gastonia
*Glenn, Lucius Newton (Hon.) S	Gastonia
*Gold, Ben, Pd	Shelby
Gold, Charles Fortune (Hon.)	Rutherfordton
Gold, Thomas Byron, ALR	Shelby
*Goode, Thomas Vance, S	Statesville
Goodman, Andy B. (Hon.)	Lenoir
Goodwin, Cleon Walton, S	Wilson
*Goodwin, Oscar Sexton, GP	Apex
Goodwin-Barbour, Edith, GP	Morganton
Gorham, Herbert Jenkins	Nashville
Goudelock, John Jeffries, U	Monroe
*Goudge, Mabel Ensworth, GP	Durham
Gouge, Arthur Edward	Bakersville
Gove, Anna M. (Hon.) GP	Greensboro
*Grady, Edward Stephen, Ob	Smithfield
Grady, James C. (Hon.) GP	Kenly
*Graham, William Alexander, ObG	Durham
Grantham, Wilmer Lloyd (Hon.) U	Asheville
Graves, Robert Williams, N	Durham
*Gray, Cyrus Leighton	Durham
Grayson, Charles Shober (Hon.) Ob	High Point
Green, William Wills (Hon.) S	Tarboro
Greene, Joseph Berry (Hon.) OALR	Asheville
*Greene, Phares Yates, PH	Graham
Greene, William Alexander, GP	Whiteville
Greenhill, Maurice Herzberger, PN	Durham
Greenwood, Adolphus Barte, U	Asheville
*Gregg, Alfred Dickson, PH	Henderson
Grier, Charles Talmadge	Carthage
Griffin, Harvey Lee	Asheboro
Griffin, Mark Alexander, P	Asheville
Griffin, William Ray, PN	Asheville
Griffith, Franklin Webb (Hon.)	Asheville
Griffith, Lewie Muller, OALR	Asheville
Grigg, John Richard, S	Gastonia
Griggs, William T. (Hon.) Pr	Poplar Branch

* Present at 1943 meeting.

Name	Address
Grimes, William Lawrence, S.	Winston-Salem
Grimson, Keith Sanford	Durham
*Grollman, Arthur, I.	Winston-Salem
Groome, James Gordon	High Point
Groves, Robert Burwell, GP	Lowell
Gurganus, George Elwood	Jacksonville
Gwynn, Houston Lafayette	Yanceyville
*Hackler, Robert Hardin, Jr., R.	Washington
Hagaman, John Bartlett	Boone
*Hagaman, Len Doughton, PH.	Lenoir
Hagna, Lewis William	Marion
*Hall, Locksley Samuel	Yadkinville
Hall, William Dewey, P.	Roanoke Rapids
*Ham, Clem, PH.	Monroe
Hamblen, Edwin Crowell, G.	Durham
Hambrick, Robert Theodore, Pr.	Hickory
Hamer, Alfred Wilson, GP.	Morganton
*Hamer, Douglas, Jr., U.	Lenoir
Hamer, William Alexander, Anes.	Charlotte
*Hamilton, John Homer, PH.	Raleigh
Hamrick, James Yates, Pd.	Boiling Springs
*Hand, Edgar Hall, PH.	Charlotte
Hanes, Frederic Moir, I.	Durham
Hansen-Pruss, Oscar Carl Edward, I.	Durham
*Harbison, John William, S.	Shelby
*Hardee, Walter Person, OALR.	Durham
*Harden, Graham	Burlington
Harden, Robert Norman, S.	Greensboro
*Harder, Frank Kirby	Greensboro
*Hardin, Eugene Ramsey, PH.	Lumberton
Harding, Samuel Asberry	Mocksville
Hardy, Ira May (Hon.) ALR.	Kinston
Hare, Ransom Bryant	Wilmington
*Harper, Frank Trumbo, Jr., T.	Burlington
Harper, James Henry (Hon.) Pd.	Snow Hill
Harrell, George Thomas, Jr., I.	Winston-Salem
*Harrill, James Albert, ALR.	Winston-Salem
Harrill, Lawson Baxter (Hon.) S.	Caroleen
Harris, William Thomas	Troy
Harrison, Edmund (Hon.)	Greensboro
Harrison, Tinsley Randolph, C.	Winston-Salem
Harriss, Andrew Howell (Hon.) GP.	Wilmington
*Harry, John McKamie, U.	Fayetteville
*Hart, Julian Deryl, S.	Durham
*Hart, Verling Kersey, ALR.	Charlotte
Hartness, William Rufus	Jonesboro
Harton, Roman Albert, GP.	Durham
*Harvey, Wallace Watson, S.	Greensboro
*Hatcher, Martin Armstead	Hamlet
*Hawes, Charles Forest	Rose Hill
Hays, Benjamin Kinsey (Hon.) T.	Oxford
*Haywood, Charles Lewis, Jr., S.	Elkin
*Haywood, Hubert Benbury (Hon.) I.	Raleigh
Head, William Thomas	Melvin Hill
*Hedgpeth, Edward McGowan, I.	Chapel Hill
Hedgpeth, Emmett Martin	Roxboro
*Hedgpeth, Louten Rhodes, OALR.	Lumberton
*Hedgpeth, William Carey, Ob.	Lumber
*Hedrick, Clyde Reitzel, C.	Lei
*Hege, John Roy, PH.	Winston-Salem
Helsabeck, Chester Joseph	Walnut Cove
Helsabeck, Rupert Sylvester	King
Hemphill, Clyde Hoke	Pasco, Wash.
Hemphill, James Eugene	Durham
Henderson, Clair Crouse	Mt. Olive
*Henderson, John Percy	Jacksonville
Henderson-Smathers, Irma Carlene, ObG.	Asheville
*Hendrix, James Paisley, I.	Durham
*Henley, Ruth Dixon, ObG.	Winston-Salem
Henry, Marina Hoyt, T.	Jamestown
*Henry, Tidal Boyce, I.	Rockingham
Hensley, Charles Albert, OALR.	Asheville
Herbert, William P. (Hon.) S.	Asheville
Herman, Charles Bernard, Pr.	Statesville
*Herndon, Claude Nash, Jr.	Winston-Salem
Herrin, Hermon Keith	Gastonia
*Herring, Edward Humphrey, GP.	Raleigh
Herring, Robert Alexander, PH.	High Point
*Hester, Joseph Robert	Wendell
*Hester, William Shepherd	Reidsville
*Hicks, Calvin Shaw (Hon.) GP.	Durham
*Hicks, Vonnie Monroe, Oph.	Raleigh
*Highsmith, Jacob Frank, Jr., S.	Fayetteville
Highsmith, William Cochran, I.	Fayetteville
*Hightower, Felda, GP.	Winston-Salem
*Hilborn, Caroline	Hemp
*Hilborn, Robert Ross	Hemp
*Hill, Millard Daniel, D.	Raleigh
Hill, William Isaac (Hon.) GP.	Albemarle
Hinnant, Milford (Hon.) GP.	Micro
*Hipp, Edward Reginald, S.	Charlotte
*Hocutt, Battle A. (Hon.) GP.	Clayton
Hodgin, Henry Hiram (Hon.) GP.	Red Springs
Hoggard, John Thomas, GP.	Wilmington
Hollister, William	New Bern
*Holloway, Joseph Clark, GP.	Durham
Holloway, Robert Lee (Hon.) GP.	Durham
*Hollowell, Claude Velmont	Goldsboro
*Hollyday, William Murray, OALR.	Asheville
*Holman, Russell Lowell, Path.	Chapel Hill
Holmes, Andrew Byron, GP.	Fairmont
*Holmes, George Washington, Or.	Winston-Salem
*Holt, Duncan Waldo, I.	Greensboro
*Holt, William Preston (Hon.) S.	Erwin
Holton, Thomas Jefferson, OALR.	Charlotte
Hooper, Joseph Ward, S.	Wilmington
Hoover, Charles Henry (Hon.) GP.	Crouse
Hoover, William Alonzo, S.	Murphy
*Horton, Miles Christopher (Hon.)	Raleigh
Horton, William Calvin (Hon.) Pr.	Raleigh
Houser, Emanuel Alvin (Hon.)	Shelby
*Houser, Forrest Melville	Cherryville
Hovis, Leighton Watson (Hon.) OALR.	Charlotte
*Howard, Corbett Etheridge, R.	Goldsboro
Howell, William Lawrence (Hon.)	Ellerbe
Hubbard, Charles Calvin (Hon.)	Farmer
Hubbard, Frederic Cecil, S.	N. Wilkesboro
Huffines, Thomas Ruffin, U.	Asheville
*Hundley, Deane, Jr.	Wallace
Hunsucker, Charles Lamar	Hickory
Hunt, James F. (Hon.)	Spindale
Hunt, Jasper Stewart, Pd.	Charlotte
Hunt, William Bryce	Lexington
*Hunter, Frank Patterson	Warrenton
*Hunter, John Pullen	Cary
*Hunter, William Cooper	Wilson
Hurdle, Samuel Walker, GP.	Winston-Salem
*Huston, John Walter (Hon.) T.	Asheville
Hutchins, Evan Marshall (Hon.) GP.	N. Wilkesboro
*Hutchinson, Sankey Smith (Hon.)	Bladenboro
*Hyde, Frank Edward, ObG.	Beaufort
*Irwin, Henderson	Eureka
*Ivey, Henry B., R.	Goldsboro
Ivey, Robert Robbins, S.	Asheville
Izlar, Henry Le Roy, Anes.	Winston-Salem
*Jackson, John McIver, PH.	Windsor
Jackson, Walter Leo (Hon.)	High Point
*Jacocks, W. P., PH.	Raleigh
*James, Arthur Augustus, Jr., GP.	Sanford
*James, Fairley Patterson, GP.	Laurinburg
*James, William Daniel, Sr. (Hon.) S.	Hamlet
James, William Duer, S.	Hamlet
Jarman, Fontaine Graham, S.	Roanoke Rapids
Jennings, Royal Garfield	Thomasville
Jervey, Allen Jones, S.	Tryon
John, Peter (Hon.) GP.	Laurinburg
*Johnson, Amos Neill, GP.	Garland
Johnson, Charles Thomas, GP.	Red Springs
Johnson, Edward John	Cherokee
*Johnson, Floyd (Hon.) PH.	Whiteville

* Present at 1943 meeting.

Name	Address
Johnson, George W., ObG	Wilmington
*Johnson, Harry Lester, S	Greensboro
Johnson, Jeremiah Robert, S	Elkin
Johnson, John Brown	Old Fort
Johnson, John Ralph	Dunn
*Johnson, Joseph Lewis	Graham
*Johnson, Paul Williams, Ob	Winston-Salem
*Johnson, Thomas Clarence (Hon.) S	Lumberton
Johnson, Walter Royle, I	Asheville
*Johnson, William Alexander (Hon.)	Reidsville
*Johnson, Wingate Memory (Hon.) I	Winston-Salem
Johnston, Christopher, C	Durham
Johnston, James Gilliam, OALR	Charlotte
Johnston, Wiley Warren, ObG	Manteo
Jolley, John William	Elkin
*Jonas, John Frank (Hon.)	Marion
Jones, Arthur Lee	Jefferson
Jones, Beverly Nicholas, OALR	Winston-Salem
*Jones, Carey Celester	Apex
Jones, Dean Cicero	Jefferson
Jones, Frank Woodson, S	Newton
*Jones, Grace Germania	Charlotte
Jones, Robert Du Val (Hon.) S	New Bern
Jones, William McConnell, Pd	Gastonia
*Jones, William Merritt (Hon.) Ins	Greensboro
Jones, William Samuel, GP	Nashville
*Joyner, George William, S	Asheboro
Joyner, Powell Winfred	Enfield
*Judd, Eugene Clarence (Hon.) S	Raleigh
*Judd, Glenn Ballentine, GP	Varina
*Judd, James M. (Hon.) GP	Varina
*Justa, Samuel Harry, U	Rocky Mount
Justice, Gaston B. (Hon.)	Marion
*Justis, Linwood Hancock	Littleton
Kafer, Oscar Adolph	New Bern
Kapp, Constantine Hege	Winston-Salem
Keever, James Woodfin, T	Hickory
Keiger, Oscar R., GP	Winston-Salem
*Keiter, William Eugene, Pd	Kinston
*Keith, Marion Yates, Pd	Greensboro
Kelly, Luther Wrentmore, I	Charlotte
Kemp, Malcolm Drake, P	Pinebluff
*Kendall, Benjamin Horton	Shelby
Kende, Tibor Norbert	Lakeland, Ky.
Kennedy, John Pressly, S	Charlotte
Kent, Alfred Abraham, Jr.	Granite Falls
Kent, Alfred Abraham, Sr. (Hon.)	Winter Park, Fla.
*Kerns, Thomas Cleveland, OALR	Durham
Kerr, James Edwin (Hon.) GP	Winston-Salem
*Kerr, Joseph	Wilson
Ketner, Fred Yadkin	Concord
Kibler, William Herbert, ALR	Morganton
Kimmelstiel, Paul, Path	Charlotte
King, Duncan Ingraham Campbell, Pd	Hendersonville
King, Edward	Asheville
*King, Edward Sandling, Bact	Winston-Salem
King, Parks McCombs (Hon.)	Charlotte
King, Richard Morrison (Hon.)	Concord
King, Robert Rogers, PH	Boone
Kinlaw, Murray Carlyle, GP	Pembroke
Kinsman, Henry Francis (Hon.)	Hamlet
Kirby, Guy S. (Hon.)	Marion
Kirby, William Leslie, D	Winston-Salem
Kirk, William Redin (Hon.) I	Hendersonville
Kirkpatrick, William L., GP	Waynesville
Kirksey, James Jackson, Pd	Morganton
Kitchin, Thurman D. (Hon.) Ed	Wake Forest
Klenner, Fred Robert	Reidsville
*Knight, Floyd Lafayette, S	Sanford
*Knowles, Daniel Lamont	Rocky Mount
Knox, John (Hon.) GP	Lumberton
*Knox, Joseph Clyde, PH	Raleigh
Koonce, Donald B., S	Wilmington
Koonce, S. Everett (Hon.) OALR	Wilmington
Kornegay, Lemuel W. (Hon.) S	Rocky Mount
Kossove, Albert Anthony, PN	Charlotte
Kossove, Irene Levy, ObG	Charlotte
Kress, Esta Joyce Levy, Pd	Wadesboro
*Kress, Jacob Himi, S	Wadesboro
Kroncke, Fred George	Roanoke Rapids
Lackey, Marvin Alphonso	High Point
Lafferty, Robert Hervey (Hon.) R	Charlotte
*Lane, Bessie Evans, I	Raleigh
*Lane, John Lofton, OALR	Rocky Mount
Larkin, Ernest Waddill	Washington
Lassiter, Vernon Clark, S	Winston-Salem
Laton, James Franklin (Hon.) OALR	Albemarle
Lattimore, Everett Beam (Hon.)	Shelby
*Lawrence, Benjamin Jones, S	Raleigh
*Lawson, Robert Barrett, Pd	Winston-Salem
Leath, MacLean Bacon, OALR	High Point
*LeBauer, Sidney Ferring, I	Greensboro
*Lee, J. Marshall, GP	Newton Grove
Lee, Lawrence Victor (Hon.)	Lattimore
*Lee, Mike, U	Kinston
*Lee, Thomas Leslie, ObG	Kinston
*Leinbach, Robert Frederic (Hon.) I	Charlotte
*Lennon, Hershel Clanton, Path	Greensboro
Leonard, Jacob Calvin, Jr.	Lexington
Lewis, John Sumter	Hickory
Lewis, Sigma Van	Plymouth
*Liles, Lonnie Carl, PN	Raleigh
Lilly, James Marshall (Hon.) OALR	Fayetteville
Lindberg, Oliver Spurgeon	Asheville
*Lineberry, John Alson	Lillington
Linville, Aaron Yancy (Hon.) GP	Winston-Salem
Lister, John L. (Hon.) U	Jackson
*Little, Howard L.	Gibsonville
Little, Lonnie Marcus, GP	Statesville
*Livingstone, Everett Alexander, ALR	Gibson
*Lock, Frank Ray, ObG	Winston-Salem
Logan, Frank William Hicks	Rutherfordton
*London, Arthur Hill, Jr., Pd	Durham
Long, Frederick Yount (Hon.)	Catawba
Long, Glenn	Newton
*Long, Ira Clinton, PN	Goldsboro
Long, Lester Lee, GP	West Jefferson
*Long, Vann McKee (Hon.) U	Winston-Salem
Long, Zachary Fillmore, Pd	Rockingham
Looney, John Joseph Williams, OALR	Rocky Mount
*Lord, Margery Juline, PH	Asheville
Lounsbury, James Breckinridge	Wilmington
*Love, Bedford E. (Hon.)	Roxboro
Love, William Marshall, GP	Monroe
Lovelace, Thomas Claude	Henrietta
*Lowery, John Robert	Salisbury
*Lubchenko, Nicholas	Harrisburg
Lupton, Carroll Crescent	Burlington
*Lupton, Emmett Stevenson, Pd	Graham
*Lutterloh, Isaac Hayden, Jr., S	Sanford
Lyday, Charles Emmett	Gastonia
*Lyday, Russell Osborne, S	Greensboro
*Lyman, Richard Sherman, P	Durham
Lynch, George Boyce	Brevard
MacConnell, John Wilson (Hon.) OALR	Davidson
MacFadyen, Paul Rutherford	Concord
*Mackie, George Carlyle	Wake Forest
MacMillan, Elbert Alexander, PN	Winston-Salem
*MacNider, William deBerniere (Hon.) Phar.	Chapel Hill
*Maddrey, Milner Crocker, S	Roanoke Rapids
*Malloy, Stephen A. Douglas (Hon.) Ob	Yanceyville
*Maness, Archibald Kelly, Ob	Greensboro
Mann, Ira Thurman, G	High Point
*Manning, Isaac Hall, Sr. (Hon.) Phy	Chapel Hill
Marlowe, William Anderson, GP	Walstonburg

* Present at 1943 meeting.

Name	*Address*
Marr, Myron Whitmore, I.	Pinehurst
*Marsh, Frank Baker, I.	Salisbury
Martin, Donald Stover, Pd and Bact.	Durham
*Martin, James Alfred, Pd.	Lumberton
Martin, John Floyd (Hon.) OALR.	Dunn
Martin, John Henry, GP.	Red Oak
Martin, John William, GP.	Roanoke Rapids
*Martin, Moir Saunders, S.	Mt. Airy
Martin, Thomas Adrian, Oph.	Maxton
Martin, William J.	Davidson
Massey, Charles Caswell, Pr.	Charlotte
*Matheson, Joseph Gaddy, OALR.	Ahoskie
Matheson, Robert Arthur, GP.	Raeford
Mathews, Robert William, I.	Greensboro
Mathieson, Kenneth Marlin, GP.	Pittsboro
Matthews, Vann Marshall, Ob.	Charlotte
Matthews, William W.	Leaksville
Maulden, Paul Ranzo, S.	Kannapolis
Mayer, Walter Brem, D.	Charlotte
*McAdams, Charles Rupert.	Belmont
McAlister, Jean. Pd.	Greensboro
*McAllister, Hugh Alexander.	Lumberton
McAnally, James McGehee, S.	Reidsville
McAnally, William Jefferson (Hon.).	High Point
McBane, Thomas Womack, GP.	Pittsboro
McBee, Paul Thomas, S.	Marion
*McBryde, Angus Murdoch, Pd.	Durham
*McCain, Paul Pressly, T.	Sanatorium
*McCain, Walkup Kennard, Ob.	High Point
McCain, William R. (Hon.).	High Point
McCall, Alvin Clay, OALR.	Asheville
McCampbell, John (Hon.) P.	Morganton
McCants, Clyde Hare, S.	Winston-Salem
McChesney, William Wallace, Ob.	Gastonia
McClelland, Joseph O., GP.	Maxton
McConnell, Harvey Russell, S.	Gastonia
McCotter, St. Elmo (Hon.).	Bayboro
McCoy, Thomas Marshal (Hon.).	Charlotte
*McCracken, John Rufus (Hon.) OALR.	Waynesville
McCuiston, Allen Masters, Pr.	Mt. Olive
*McCutchan, Frank	Salisbury
McDade, Brodie Banks, Ob.	Burlington
*McDowell, Roy Hendrix, PH.	Durham
*McDowell, William Kitchin, PH.	Rocky Mount
McDuffie, James Thomas, Jr., GP.	Murphy
McEachern, Duncan Roland, GP.	Wilmington
McElroy, James Lawrence.	Marshall
*McElwee, Ross Simonton (Hon.) R.	Statesville
*McFadyen, Oscar Lee, Sr. (Hon.) I.	Fayetteville
*McGeachy, Robert Sherwood (Hon.) PH.	New Bern
McGee, Julian Murrill, ObG.	Greensboro
*McGee, Robert Louis, S.	Raleigh
McGehee, John William (Hon.) Ob.	Reidsville
*McGowan, Cladius	Plymouth
*McGowan, Joseph Francis, OALR.	Asheville
McGuire, Burrus Boyd, PH.	Lincolnton
*McIntosh, Donald Munro (Hon.) S.	Old Fort
McIntosh, William Rufus.	Rockingham
*McIntyre, Stephen, S & U.	Lumberton
*McIver, Lynn (Hon.) GP.	Sanford
*McKay, Hamilton Witherspoon, U.	Charlotte
McKay, Joseph F. (Hon.).	Buies Creek
McKay, Robert Witherspoon, U.	Charlotte
*McKay, William Peter, OALR.	Fayetteville
McKenzie, Benjamin Whitehead, S.	Salisbury
*McKenzie, Wayland Nash, PH.	Albemarle
McKnight, Roy Bowman, S.	Charlotte
*McLain, John Edward Gorsuch, T.	Wilson
*McLamb, George Thomas.	Mebane
*McLaughlin, Calvin Sturgis (Hon.).	Charlotte
McLean, Allan (Hon.).	Morganton
McLean, Ewen Kenneth, Pd.	Charlotte
*McLelland, William Davies.	Mooresville
McLemore, George A. (Hon.) GP.	Smithfield
McLeod, Alexander H. (Hon.) S.	Aberdeen
*McLeod, John Purl Utley, U.	Marshville
McLeod, Vida Canaday.	Southern Pines
McLeod, Walter Guy.	Rosman
*McLeod, William Louis.	Norwood
McMillan, John M. (Hon.).	Candor
*McMillan, Robert Lindsay, I.	Winston-Salem
*McMillan, Roscoe Drake (Hon.) GP.	Red Springs
McNairy, Margaret Caroline, Ob.	Lenoir
McPhail, Lorenzo Dow (Hon.) Pr.	Charlotte
*McPheeters, Samuel Brown, PH.	Goldsboro
*McPherson, Charles Wade (Hon.) OALR	Burlington
McPherson, Robert Gray (Hon.).	Saxapahaw
*McPherson, Samuel Dace (Hon.) OALR.	Durham
Mears, George Augustus, Ind.	Asheville
Mebane, William Carter, Jr., S.	Wilmington
Menefee, Elijah Eugene, Jr., I.	Durham
Menzies, Henry Charles (Hon.).	Hickory
*Menzies, Henry Harding.	Winston-Salem
Merritt, John Hamlett (Hon.).	Woodsdale
*Mewborn, John Moses.	Farmville
*Michal, Mary Barrows Harris, Pd.	Waynesville
*Milam, Daniel Franklin, PH.	Chapel Hill
Miles, May Sallie (Hon.).	Greensboro
Miles, Walter W., GP.	Champion
*Milham, Claude Gilbert, R.	Hamlet
Millender, Charles White.	Asheville
Miller, Harry GP.	Murphy
Miller, John Floyd, S.	Marion
*Miller, Oscar Lee, Or.	Charlotte
Miller, Robert Bascom (Hon.) Pd.	Goldsboro
*Miller, Robert Carlysle.	Gastonia
*Milliken, James Shepard.	Southern Pines
*Mitchell, George William.	Wilson
Mitchell, Gurney Talmage, GP.	Wilkesboro
Mitchell, Paul Hayne (Hon.).	Ahoskie
Mitchell, Robert Hartwell.	Gastonia
*Mitchell, Roy Colonel, I.	Mt. Airy
Mitchell, Thomas Brice.	Shelby
Mitchell, Zack Perry, PH.	Shelby
*Mitchener, James Samuel, OALR.	Raleigh
*Mock, Frank Lowe (Hon.).	Lexington
Moffett, Alexander Stuart, S.	Banner Elk
Monk, Henry Laurence (Hon.).	Salisbury
*Monroe, Clement Rosenburg, S.	Pinehurst
*Monroe, Daniel Geddie, T.	Wilson
Monroe, Lance Truman, ObG.	Kannapolis
Montgomery, Harry Maurice (Hon.).	Burlington
Moore, Alexander Wylie (Hon.).	Charlotte
*Moore, Burmah Dixon.	Mt. Holly
Moore, Donald Bain, Ind.	Badin
*Moore, D. Forrest, ObG.	Shelby
*Moore, Davis Lee.	Winterville
*Moore, Julian Alison, S.	Asheville
*Moore, Kinchen Carl, PH.	Currituck
Moore, Oren (Hon.) G.	Charlotte
*Moore, Robert Alexander, Or.	Winston-Salem
Moore, Robert Ashe, Pd.	Charlotte
*Moore, William Houston (Hon.) Ob.	Wilmington
Morgan, Burnice Earl, GP.	Asheville
Morgan, Grady Alexander.	Asheville
Morgan, William Gardner, U.	Chapel Hill
Moricle, C. Hunter, S.	Leaksville
*Morris, John Watson, S.	N. Wilkesboro
Morris, Joseph A. (Hon.).	Franklinton
Morris, Rae Henderson.	Concord
Morrow, William Columbus, GP.	Andrews
Moseley, Zebulon Vance, PH.	Kinston
Moss, George Oran, Ind.	Cliffside
Motley, Fred Elliott, ALR.	Charlotte
Mudgett, William Chase (Hon.) I.	Southern Pines
Munroe, Henry Stokes (Hon.) S.	Charlotte
Munt, Herbert Frederick.	Winston-Salem
Murchison, David Reid, I.	Wilmington
*Murphy, Robert Jennings, Jr.	Morganton

* Present at 1943 meeting.

Name	Address
Murray, Robert Lebby, GP	Raeford
Myers, Alonzo Harrison, Or	Charlotte
Myers, Dwight Loftin	Harmony
*Myers, John Quincy (Hon.) N	Charlotte
Nalle, Brodie Crump (Hon.) ObG	Charlotte
*Nance, Charles Lee	Charlotte
Nash, John Frederick	St. Pauls
Neal, John William (Hon.) GP	Monroe
Neal, Kemp Prather, S	Raleigh
*Neblett, Herbert Clarence, Oph	Charlotte
*Neese, Kenneth Earle, GP	Monroe
Nelson, Robert J. (Hon.)	Robersonville
Neville, Cecil Howell	Scotland Neck
Newcombe, Andrew Purefoy, Jr	Henderson
Newell, Hodge Albert (Hon.) OALR	Henderson
Newell, Leon Burns (Hon.)	Charlotte
Newman, Harold Hastings, S	Salisbury
*Newton, Howard Lowell	Charlotte
*Newton, William King, OALR	N. Wilkesboro
Nichols, Alvan Alexander (Hon.)	Sylva
Nichols, Asbury S	Sylva
*Nichols, Austin Flint (Hon.)	Roxboro
*Nichols, Rhodes Edmond, Jr., GP	Durham
Nichols, Rhodes Edmond, Sr. (Hon.) GP	Durham
Nicholson, Benjamin M. (Hon.)	Enfield
Nicholson, Neill Graham, Jr	Rockingham
Nicholson, Plummer A. (Hon.) Ob	Washington
Nicholson, William McNeal, I	Durham
Nisbet, Douglas Heath, I	Charlotte
*Noble, Robert Primrose (Hon.) R	Raleigh
*Noblin, Roy Lee	Oxford
*Noel, William Walker	Henderson
Noell, Robert Holman, GP	Rocky Mount
Nolan, James Onslow	Kannapolis
Noojin, Ray Oscar, Jr	Durham
Norburn, Charles Strickland, S	Asheville
Norburn, Russell Lee, S	Asheville
*Norfleet, Edgar Powell, Pd	Roxobel
Norman, J. Standing, OALR	Gastonia
Norman-Glenn, Dorothy F	Gastonia
Norment, W. Blount, S	Greensboro
Northington, James Montgomery (Hon.) I	Charlotte
*Norwood, Ballard, Jr., PH	Oxford
*O'Briant, Albert Lee	Raeford
O'Dell, James Walter	Dunn
*Oehlbeck, Luther William, R	Morganton
*Offutt, Vernon Delmus	Kinston
*Ogburn, Herbert Hammond, S	Greensboro
*Oliver, Adlai Stevenson, Ob	Raleigh
Oliver, Joseph Andrew	Rockwell
*O'Neill, James Francis	Winston-Salem
Orgain, Edward Stewart, C	Durham
Ormand, John William, ALR	Monroe
Ormond, Allison Lee, T	Black Mountain
*Orr, Charles Collins (Hon.) I	Asheville
Orr, Porter B. (Hon.)	Asheville
Orr, William Law	Matthews
*Outland, Robert Boone	Rich Square
*Outlaw, Jackson Kent, OALR	Albemarle
Owen, Charles Fletcher, Jr., S	Canton
Owen, John Fletcher, NP	Raleigh
*Owen, Margaret Lineberry, G	Canton
*Owen, Robert Harrison, S	Canton
*Owens, Francis Leroy, S	Pinehurst
Owens, Zack Doxey	Elizabeth City
*Ownbey, Arthur Dennis, S	Greensboro
*Pace, Karl Busbee, GP	Greenville
Pace, Samuel Eugene	Leaksville
Paddison, John Robert (Hon.) GP	Kernersville
Palmer, Horace, GP	Littleton
*Palmer, Marion Cherigny	Tryon
*Palmer, Yates Shuford, S	Valdese
*Papineau, Alban, T	Plymouth
Parker, George Farrar, S	Asheville
*Parker, Herman Richard, GP	Greensboro
Parker, James Jarvis	Elizabeth City
*Parker, Oscar Lee, OALR	Clinton
*Parker, Paul Godwin	Erwin
Parker, Wade Thomas, Ind	Fayetteville
Parks, Walter Beatty, Ind	Gastonia
Parrette, Nettie Coffey	Robbinsville
Parrott, Mercer Cranor, S	Kinston
*Parrott, William Thomas (Hon.) GP	Kinston
Parsons, William Herbert, GP	Ellerbe
Pate, James Frank, GP	Canton
*Pate, James Gibson, D	Gibson
Patman, William Louis, S	Siler City
Patrick, George Riddle, Jr	Bessemer City
*Patterson, Fred Marion, U	Greensboro
Patterson, Joseph Flanner (Hon.) S	New Bern
Patterson, Joseph Halford	Broadway
Pay, Wilson Cyrus	Hendersonville
Payne, John Abb, III	Sunbury
*Pearson, Hugh Oliver, GP	Pinetops
*Peede, Alvin Wortham	Lillington
Peeler, Clarence N. (Hon.) ALR	Charlotte
Peeler, John H. (Hon.) Ob	Salisbury
Peery, Vance Price, OALR	Kinston
*Peete, Charles Henry (Hon.) Ob	Warrenton
Pegg, Fred Grant, PH	Winston-Salem
*Pendleton, Wilson, I	Asheville
*Pepper, John Kerr (Hon.) R	Winston-Salem
*Perry, David Russell, GP	Durham
*Perry, Ernest Monroe, Oph	Rocky Mount
Perry, Henry B., GP	Boone
Perry, Herbert G., ObG	Louisburg
Perry, William Clifton	Louisburg
Person, Edgar Cooper (Hon.) OALR	Pikeville
Peters, August Richard, Jr., Pd	Washington
Peters, William Anthony, S	Elizabeth City
Peterson, Charles A. (Hon.)	Spruce Pine
Petteway, George Henry	Charlotte
Pettus, William Henry, Jr., S	Charlotte
Pfohl, Samuel Frederick (Hon.) GP	Winston-Salem
Phillips, Charles Hoover (Hon.)	Thomasville
*Phillips, Ernest Nicholas, GP	N. Wilkesboro
Pickett, John A. (Hon.)	Burlington
Pierce, Amor Francis, GP	Winston-Salem
Pipes, David McKowen, A	Greensboro
*Pittman, Malory Alfred, Or	Wilson
*Pittman, Raymond Lupton (Hon.) S	Fayetteville
Pollock, Raymond (Hon.)	New Bern
*Pool, Bennette Baucom, A	Winston-Salem
*Pool, Charles Glenn, Pd	Winston-Salem
Post, John James, GP	Nashville, Tenn.
*Powell, Albert Henry, C	Durham
Powell, Jesse Averette (Hon.)	Edenton
*Powers, Frank Poydras, ALR	Raleigh
Prefontaine, J. Edouard, OALR	Greensboro
Pressly, James Lowry, GP	Statesville
Pressly, John Mason	Belmont
Preston, John Zenas	Tryon
Pritchard, George Littleton, GP	La Grange
*Procter, Ivan Marriott, ObG	Raleigh
Pruitt, Samuel Orr	Wilmington
Pugh, Charles Harrison (Hon.)	Gastonia
Pulliam, Benjamin Eloth	Winston-Salem
*Purdy, James Jarrett	Oriental
Putney, Robert Hubbard	Elm City
Quickel, John Cephas, OALR	Gastonia
Quinn, Robert Franklin	Magnolia
*Raby, James Grover, Pd	Tarboro
*Rainey, William Thomas, I	Fayetteville
Ramsaur, Jackson Townsend, OALR	Cherryville
Ramsay, James Graham, S	Washington
Ramseur, William Lee	Kings Mountain
Rand, Cecil Holmes, Ob	Fremont
*Raney, Richard Beverly, Or	Durham
Rankin, Pressly Robinson (Hon.)	Mt. Gilead

* Present at 1943 meeting.

Name	Address
Rankin, Samuel Wharton, OALR	Winston-Salem
Rankin, Watson Smith (Hon.) PH	Charlotte
Ranson, John Lester (Hon.) Anes	Charlotte
Ravenel, Samuel Fitzsimmons, Pd	Greensboro
Ray, Frank Leonard, U	Charlotte
*Ray, John B. (Hon.)	Leaksville
Ray, Otis L. (Hon.) GP	Raleigh
*Ray, Samuel Philip	Leaksville
Reaves, William Perry (Hon.) OALR	Greensboro
Reed, Doctrine Hugh (Hon.) GP	Wagram
Reeves, James Leroy	Hope Mills
Reeves, Jerome Lyda, GP	Canton
Reeves, Riley Jefferson, GP	Leicester
*Reeves, Robert James, R	Durham
*Reid, Calvin Graham, I	Charlotte
*Reid, James William (Hon.)	Lowell
Reid, Ralph Connor	Charlotte
Reid, Thomas Neely (Hon.)	Matthews
Reitzel, Claude Everett (Hon.)	High Point
*Reynolds, Carl Vernon (Hon.) PH	Raleigh
Reynolds, Ernest Harold	Mayodan
Rhodes, James Slade (Hon.)	Williamston
*Rhodes, John Sloan, U	Raleigh
*Rhudy, Booker Ephram, R	Greensboro
*Rhyne, Robert Edgar (Hon.) PH	Gastonia
Rhyne, Sam Albertus, GP	Statesville
Rice, Edmond Lee	Statesville
Richards, Milton Cardwell	Goldsboro
*Richardson, Frank Howard, P	Black Mountain
*Richardson, William Perry, PH	Chapel Hill
*Ricks, Leonard E. (Hon.) GP	Fairmont
Riddle, Joseph Bennett (Hon.)	Morganton
Riggsbee, Arthur Eugene (Hon.) GP	Durham
*Ringer, Paul Henry (Hon.) T	Asheville
Roberson, Robert Stuart, GP	Waynesville
*Roberts, Bryan Nazer, GP	Hillsboro
*Roberts, Bennett Watson, Pd	Durham
Roberts, William McKinley, Or	Gastonia
*Robertson, James Farish, S	Wilmington
*Robertson, James Mebane, GP	Harmony
Robinson, Charles Wilson	Charlotte
*Robinson, Donald Edward, Pd	Burlington
Robinson, James Lee, S	Gastonia
*Rodgers, William Daniel	Warrenton
Rogers, Wiley Astor (Hon.)	Franklin
*Root, Aldert Smedes, Pd	Raleigh
*Rose, Abraham Hewitt (Hon.) GP	Smithfield
*Rose, David Jennings, S	Goldsboro
Rose, James William, GP	Pikeville
*Ross, Otho Bescent (Hon.) R	Charlotte
*Rosser, Robert Guthrie (Hon.) Pd	Vass
*Rousseau, James Parks, R	Winston-Salem
Rowe, Virginia Copeland	Marion
*Royal, Benjamin F. (Hon.) S	Morehead City
*Royal, Dennie Martin, GP	Salemburg
Royall, M. A. (Hon.) OALR	Elkin
*Royster, Hubert Ashley (Hon.) S	Raleigh
Royster, Stephen Sampson (Hon.)	Shelby
Royster, Thomas Hays, OALR	Tarboro
Rucker, Adin Adam (Hon.)	Rutherfordton
Rudisill, John David, S	Lenoir
Ruffin, Joseph B., GP	Powellsville
Ruffin, Julian Meade, I	Durham
Russell, Charles R	Granite Falls
Russell, Jesse Milton (Hon.) Pd	Canton
Russell, Lloyd Pacemus	Fletcher
Sabiston, Frank, OALR	Kinston
*Sadler, Ralph Calvert, GP	Whiteville
Saliba, Michael M. (Hon.) Oph	Wilson
Salley, Edward McQueen (Hon.) ObG	Hendersonville
Salmons, Henry Clay (Hon.)	Elkin
Salters, Frederic Hay, OALR	Elizabeth City
Sample, Robert Cannon, GP	Hendersonville
*Saunders, John Rudolph	Morganton
Saunders, Sheldon Asa	Aulander
Saunders, Stanley Stewart, Pd	High Point
Schaffle, Karl, T	Asheville
Schallert, Paul Otto (Hon.)	Winston-Salem
Schenck, Sam Moore, S	Shelby
*Schiebel, Herman Max, S	Durham
Schoonover, Robert Arnold (Hon.)	Greensboro
Scott, Samuel Floyd	Burlington
Scruggs, William Henry	Andrews
*Scruggs, William Marvin, S	Charlotte
*Seay, Hillis Ledbetter, T	Huntersville
*Seay, Thomas Waller	Spencer
Selby, William Elledge, NP	Charlotte
Sessoms, Edwin Tate, GP	Roseboro
Sevier, Joseph Thomas (Hon.)	Asheville
*Shafer, Irving Everett, Ob	Salisbury
*Sharp, Oliver Ledbetter, I	Greensboro
*Sharpe, Charles Ray	Lexington
Sharpe, Frank Alexander, ObG	Greensboro
Shaver, William Trantham, S	Albemarle
*Shaw, John Alexander, Pd	Fayetteville
Shaw, Lloyd Roosevelt, GP	Statesville
Shellem, Oliver William	Denver
Sherrill, Herbert Rankin	Shelby
Sherrill, Phil Minnis	Thomasville
Shirley, Harold Clinkscales, ALR	Charlotte
Shohan, Joseph, R	Greensboro
Shuford, Mary Frances, Path	Asheville
Shuler, James Edward, I	Durham
*Shull, Joseph Rush, R	Charlotte
*Sidbury, James Buren, Pd	Wilmington
*Sigman, Frederick Grant (Hon.) R	Spencer
Sikes, Gibson L. (Hon.) GP	Salemburg
*Simmons, Alexander Wingate, GP	Burlington
Simmons, Raymond Robinson, U	Winston-Salem
*Simons, Claude Ernest	Wilson
*Simpson, Henry Hardy	Elon
Singletary, George Currie	Clarkton
Sink, Charles Shelton, GP	N. Wilkesboro
Sink, Vergil Rex, ALR	Winston-Salem
*Sisk, Crete Nixon, PH	Waynesville
*Sisk, Wilfred Nixon, PH	Asheville
*Siske, Grady Cornell	Pleasant Garden
*Skeen, Leo Brown	Statesville
Slate Joseph Esmond	High Point
Slate, John Samuel (Hon.) GP	Winston-Salem
Slate, John William	High Point
*Slate, Marvin Longworth, Ob	High Point
Slate, Wesley C. (Hon.)	Spencer
Sloan, Allen Barry, GP	Mooresville
Sloan, David Bryan, OALR	Wilmington
*Sloan, Henry Lee, Oph	Charlotte
Sloan, William Henry	Garland
Sloop, Eustace H. (Hon.)	Crossnore
Small, Victor Roy, GP	Clinton
Smith, Alick Thomas, GP	Greensboro
Smith, Anderson Jones	Black Creek
*Smith, Annie Thompson, G	Durham
Smith, Bernard Reid, I	Asheville
Smith, Claiborne Thweat, I	Rocky Mount
Smith, Daniel Lesesne, Pd	Saluda
Smith, David Tillerson, I	Durham
*Smith, Fitzhugh Lee	Burlington
Smith, Franklin Calton, Oph	Charlotte
Smith, George Marvin, GP	Monroe
*Smith, Harold Benjamin, G	N. Wilkesboro
Smith, J. Alexander, S	Lexington
Smith, John McNeill (Hon.) GP	Rowland
*Smith, Joseph, ObG	Greenville
*Smith, Joseph Elmer	Windsor
Smith, Melvin Bowman	Ramseur
*Smith, Oscar Fennell (Hon.)	Scotland Neck
Smith. Ruby A	Chapel Hill
Smith, Sidney, U	Raleigh

* Present at 1943 meeting.

Name	Address
Smith, Slade Alvah, OALR	Whiteville
Smith, William Carey	Goldsboro
Smith, William Franklin (Hon.) GP	Chadbourn
Smith, William Gordon, S	Thomasville
*Smith, William Hopton (Hon.) I	Goldsboro
Smoot, James Edward (Hon.)	Concord
*Soady, John Hostley, Pd	Asheboro
*Sorrell, Furman Yates, GP	Wadesboro
Spainhour, Ellis H. (Hon.) GP	Winston-Salem
Sparrow, Thomas DeLamar, S	Charlotte
Speas, Dallas C., GP	Winston-Salem
Speas, William Paul (Hon.) Oph	Winston-Salem
*Speed, Joseph Anderson, GP	Durham
Speight, James Ambler	Rocky Mount
Spencer, Frederick Brunell (Hon.)	Salisbury
Spicer, Richard Williams, ObG	Winston-Salem
Spiggle, Charles Harold	Grimesland
Spikes, Norman Owen, GP	Durham
Spoon, Samuel Clarence, ObG	Burlington
Sprinkle, Charles Nicholas, GP	Weaverville
Sprunt, Douglas Hamilton, Path	Durham
*Sprunt, William Hutchinson, S	Winston-Salem
Squires, Claude Babbington, U	Charlotte
Staley, S. Walter (Hon.) GP	Rocky Mount
Stanfield, William Wesley, S	Dunn
Stanford, Lois Foote, GP	Durham
*Stanford, William Raney, I	Durham
Stanley, John Haywood (Hon.) GP	Four Oaks
Stanton, David A. (Hon.)	High Point
*Starling, Howard Montfort, S	Winston-Salem
*Starling, Wyman Plato, R	Roseboro
Starr, Henry Frank, Ins	Greensboro
Staton, Leon Raphael, GP	Hayesville
Stephenson, Anne Lorth, ObG	Winston-Salem
Stevens, Hamilton Wright, Jr., PH	Jacksonville
*Stevick, Charles Paul	Beaufort
*Stimpson, Robert Tula, PH	Raleigh
Stirewalt, Neale Summers	High Point
Stokes, Robert L	Brevard
Stone, Grady Erasmus	King
Stone, Marvin Lee, GP	Rocky Mount
*Street, Claudius Augustus, Pd	Winston-Salem
*Street, Murdo Eugene, Jr	Glendon
Street, Murdo Eugene, Sr. (Hon.) I	Glendon
Stretcher, Robert Hatfield, S	Waynesville
Strickland, Arthur Thomas, Ob	Wilson
Strickland, Edward F. (Hon.) GP	Winston-Salem
*Strickland, Ernest Lee, Pd	Wilson
*Strickland, Williard Milo	Wendell
Stringfield, Samuel Lanier (Hon.) S	Waynesville
Stringfield, Thomas, Sr. (Hon.) Anes	Waynesville
*Strosnider, Charles Franklin	Goldsboro
Suiter, Wester Ghio	Weldon
Summerlin, Harry, GP	Laurinburg
*Summerville, W. Monroe, CP	Charlotte
Sumner, Emmett Ashworth, S	High Point
*Sumner, George Herbert, PH	Asheboro
Sumner, Thomas W	Hendersonville
Sutton, William Gordon (Hon.)	Seven Springs
Swann, Cecil Collins, ALR	Asheville
Swann, Joseph Fuller (Hon.)	Kannapolis
*Sweaney, Hunter McGuire, S	Durham
Swindel, Lewis Holmes, Jr	Washington
*Sykes, Rufus Preston, S	Asheboro
*Symington, John, PH	Carthage
Talley, John Samuel, GP	Troutmans
Tally, Bailey Thomas, GP	Albemarle
*Tankersley, James William (Hon.) S	Greensboro
Tate, William Cummings (Hon.) S	Banner Elk
*Tayloe, John Cotten, Ob	Washington
Taylor, Benjamin Cicero	Mt. Holly
Taylor, Erasmus Henry Evans, P	Morganton
*Taylor, Frederick Raymond, I	High Point
*Taylor, Frank Victor, OALR	Murphy
Taylor, George Winston (Hon.) S	Mooresville
*Taylor, James Nathaniel (Hon.) GE	Greensboro
Taylor, James Thomas (Hon.) I	Greensboro
Taylor, John Eldredge	Morganton
Taylor, Shahane Richardson, OALR	Greensboro
Taylor, Vernon Williams, Jr	Winston-Salem
Taylor, William Ivey (Hon.) GP	Burgaw
Taylor, William Lewis (Hon.)	Oxford
Templeton, John Young, GP	Mooresville
Tennent, Gaillard S. (Hon.) Oph	Asheville
*Terry, Jarvis Russell (Hon.) Pd	Lexington
Terry, William Calvin, GP	Hamlet
Thaxton, Benjamin Adams	Roxboro
Thigpen, Harry Gordon	Scotland Neck
*Thomas, Charles Darwin, T	Sanatorium
*Thomas, Julius Graham	Greensboro
Thomas, Wilbur Clyde, Path	Winston-Salem
*Thomas, William Nelson, S	Oxford
Thompson, Alexander Frank (Hon.)	Troy
Thompson, Claude Durant (Hon.) GE	High Point
Thompson, Clive Allen, GP	Sparta
*Thompson, Edgar Stinceon, Ind	Winston-Salem
Thompson, George Richard Cunliffe	Wilmington
Thompson, Heyward Chevis, T	Shelby
*Thompson, Hugh Alexander, Or	Raleigh
*Thompson, Joseph W	Creedmoor
*Thompson, Silas Raymond, U	Charlotte
Thompson, S. Webb, Jr	Morehead City
*Thorpe, Adam Tredwell, ObG	Rocky Mount
Thurston, Asa, GP	Taylorsville
*Tillery, Jack Gregory, GP	Wilson
Todd, Lester Claire, CP	Charlotte
Townsend, Maurice Lyndon (Hon.)	Society Hill, S. C.
*Townsend, Robert Glenn, GP	St. Pauls
Trent, Josiah Charles	Durham
Triplett, William Romulus	Purlear
Trotter, Fred Oscar, S	Hendersonville
*Troxler, Raymond Moody	Burlington
*Tucker, Earl Van	Grifton
Tuggle, Allan Davis, R	Charlotte
Turlington, William Troy, Jr	Jacksonville
Turner, Henry Gray, S	Raleigh
Tuttle, Andrew Frier (Hon.)	Spray
*Tuttle, Marler Slate, Pd	Kannapolis
*Tuttle, Reuben Gray, Pr	Winston-Salem
Tydeman, Frederick William Louis	San Francisco, Cal.
Tyler, Earl Runyon, D	Durham
*Tyner, Carl Vann, S	Leaksville
*Tyson, Thomas D. (Hon.) Pr	Mebane
*Ulloth, Gustave	Ansonville
*Umphlet, Thomas Leonard, I	Raleigh
Underwood, Millard Kersey	Belhaven
Utley, Henry Gibbons, A	Gastonia
*Valk, Arthur de Talma, S	Winston-Salem
*Vann, Herbert Moffett, Anat	Winston-Salem
Vann, Junius Richardson, GP	Spring Hope
Vaughan, Edwin Warner, I	Greensboro
Vaughan, Joseph Clinton	Rich Square
Vaughan, Roland Harris, GP	Edenton
*Vaughan, Walter Weddle, R	Durham
Verdery, William Carey, Pd	Fayetteville
Verner, Carl Hugh, Pd	Forest City
*Vernon, James William (Hon.) P	Morganton
Vestal, Willis Jasper (Hon.) P	Lexington
Wadsworth, Harvey Bryan	New Bern
Walden, Kennon C., S	Wilmington
Walker, Elmer Pixley	Wilmington
Walker, Ernest Thayer	Williamston
*Walker, Herbert Dillon (Hon.)	Elizabeth City
*Walker, John Barrett	Burlington
Walker, Louis Kyle	Ahoskie
Walker, Robert Jeffreys, Jr. GP	Snow Hill
*Wall, Roger Irving, OALR	Raleigh
*Wall, Roscoe Le Grand, Anes	Winston-Salem

* Present at 1943 meeting.

Name	Address
*Wall, William Stanley, Ob	Rocky Mount
*Wallin, Loren, PH	Wadesboro
*Walters, Charles Manley (Hon.)	Burlington
Walton, George Britain, GP	Chadbourn
*Wannamaker, Edward Jones, Jr., I	Charlotte
Ward, Ivie Alphonso, OALR	Hertford
Ward, Jesse Elliott (Hon.) GP	Robersonville
*Ward, John LaBruce, P	Asheville
Ward, Vernon Albert	Robersonville
*Ward, William Titus, GP	Raleigh
Warfield, Mary Cabell, Pd	Blowing Rock
Warren, Robert Franklin (Hon.)	Prospect Hill
Warrick, Luby Albert	Goldsboro
Washburn, Benjamin Earl, PH	Rutherfordton
Watkins, George Thomas, Jr., GP	Durham
Watkins, John Armstrong, ObG	Asheville
Watkins, William Merritt, GP	Durham
Watson, Hugh Alfred, S	Greensboro
Watson, James, PN	Raleigh
Watson, Paul Southerne	Madison
Watson, Samuel Parks, ALR	New Bern
*Watson, Thomas Mervelle, Pd	Greenville
Weathers, Bahnson, S	Roanoke Rapids
Weathers, Bailey Graham	Stanley
*Weathers, Rupert Ryan, GP	Knightdale
Weaver, William Jackson (Hon.) Pr	Asheville
*Webb, Alexander, Jr., S	Raleigh
Webb, William P. (Hon.) GP	Rockingham
Webster, Ben	Brevard
Weddington, James L., S	Hendersonville
Weinstein, Rayford Lee, GP	Fairmont
Weiters, John Christopher	Bryson City
Weizenblatt, Sprinza, Oph	Asheville
Wellborn, William R	Elkin
*Welton, David Goe, D	Charlotte
Wessell, John Charles (Hon.) I	Wilmington
West, Bryan Clinton, Pd	Kinston
West, Clifton Forrest, GP	Kinston
*West, Louis Nelson, OALR	Raleigh
*Wheeler, James Hartwick	Henderson
Wheless, James Block	Louisburg
*Whelpley, Frank Livingston, P	Goldsboro
*Whichard, Murphy Parmer, PH	Murphy
Whicker, Guy Lorraine	Kannapolis
*Whisnant, Albert Miller (Hon.) OALR	Charlotte
Whitaker, Ferdinand Cary	Enfield
*Whitaker, James Allen, PH	Rocky Mount
*Whitaker, Paul Frederick, I	Kinston
Whitaker, Richard Bidgood, GP	Whiteville
Whitaker, Richard Harper, GP	Kernersville
*White, Clarence Hunt, Oph	Henderson
White, Estus	Kannapolis
White, Francis Williard Moody	Halifax
White, Robert Alexander, Ob	Asheville
White, William Henry Clay, S	Elizabeth City
*Whitehead, Seba L., D	Asheville
Whitfield, Bryan Watkins, GP	Murphy
Whittington, James Benbow (Hon.) S	Winston-Salem
Wilder, Raboteau Terrell	Glen Alpine
*Wilkerson, Annie Louise, ObG	Raleigh
*Wilkerson, Charles B. (Hon.) I	Raleigh
Wilkerson, Jesse Bert	Brevard
*Wilkes, Marcus Branch, GP	Laurinburg
*Wilkins, Java Cleveland	Haw River
*Wilkins, Robert Bruce, OALR	Durham
Wilkins, Samuel A., Sr. (Hon.)	Dallas
Wilkinson, Louis Lee	Rutherfordton
Wilkinson, Robert Watson, Jr.	Wake Forest
Willcox, Jesse Womble (Hon.) T	Wilmington
Williams, Albert Franklin (Hon.)	Wilson
*Williams, Charles L., Jr.	New Bern
Williams, Edward Jerome	Monroe
*Williams, Jabez Herring, PH	Clinton
Williams, James Marcus	Warsaw
Williams, John Drewey (Hon.)	Guilford Station
*Williams, John Ralston, Jr., C	Winston-Salem
Williams, Lester L	Spruce Pine
*Williams, Leonidas Polk	Edenton
*Williams, Lynwood Earl	Kinston
Williams, Norton Lauriet, GP	Murphy
*Williams, Roderick Thomas	Farmville
Williams, William Norman, GP	Tabor City
Williamson, Ross Marshall	Tabor City
Willis, Arthur Ponder (Hon.)	Candler
*Willis, Byrd Charles, S	Rocky Mount
Willis, Harry Clay, OALR	Wilson
Willis, William Henry	Goldsboro
Wilson, Clarence L. (Hon.)	Lenoir
Wilson, Newton Graves	Madison
*Wilson, Russell Fletcher, R	Winston-Salem
*Wilson, William Gilliam, GP	Smithfield
*Winkler, Harry, Or	Charlotte
*Winstead, Ellis Grey	Belhaven
*Winstead, John Lindsay, S	Greenville
Wiseman, Perry Haynes	Avondale
*Wolfe, Hugh Claibourne, OALR	Greensboro
Wood, Hagan Emmett, T	Black Mountain
*Woodard, Albert G. (Hon.) Oph	Goldsboro
Woodard, Barney Lelon, GP	Kenly
Woodard, Charles Augustus (Hon.) S	Wilson
*Woodruff, Fred Gwyn	High Point
*Woods, James Baker, Jr.	Davidson
Woodson, Charles Whitehead (Hon.)	Salisbury
*Wooten, Amos Monroe	Pinetops
Wooten, Floyd Pugh, S	Kinston
*Wooten, William Isler, S	Greenville
*Wrenn, Grover Cleveland, GP	Siler City
*Wright, John Bryan (Hon.) ALR	Raleigh
*Wright, John Everett, GP	Macclesfield
*Wright, John Joseph, PH	Chapel Hill
*Wright, Orpheus Evans	Winston-Salem
Wyatt, Hubert Lee	China Grove
Wyatt, Wortham, D	Winston-Salem
Wylie, William DeKalb, I	Winston-Salem
*Yarborough, Frank Ray, ALR	Cary
Yarborough, Richard Fenner (Hon.) PH	Louisburg
Yates, Percy Fenton, GP	Clayton
Yoder, Paul Allison, T	Winston-Salem
York, Alexander Arthur (Hon.)	High Point
Young, John Clingman, U	Asheville
*Young, Robert Foster, PH	Raleigh
*Yow, Daniel Eugene	Concord
Yow, Ira A. (Hon.)	Concord
Zealy, Albert Hazel, Jr.	Goldsboro
Zimmerman, Robert U. (Hon.)	Welcome

* Present at 1943 meeting.

Key to Specialties

A—Allergy
Anes—Anesthesiology
ALR—Otology, Laryngology, Rhinology
Bact—Bacteriology
C—Cardiovascular Disease
CP—Clinical Pathology
D—Dermatology
Ed—Medical Education
G—Gynecology
GE—Gastroenterology
I—Internal Medicine
Ind—Industrial Practice
Ins—Insurance
N—Neurology
NS—Neurological Surgery
OALR—Ophthalmology, Otology, Laryngology, Rhinology
Ob—Obstetrics
ObG—Obstetrics, Gynecology
Oph—Ophthalmology
Or—Orthopedic Surgery
P—Psychiatry
PN—Psychiatry, Neurology
Path—Pathology
Pd—Pediatrics
PH—Public Health
Phar—Pharmacology
Phy—Physiology
Pr—Proctology
R—Roentgenology, Radiology
S—Surgery
T—Tuberculosis
U—Urology

FELLOWS IN SERVICE

NOTE: As far as possible we have listed the names of all Fellows in any of the Services. We realize, however, that some names have not yet been reported to the Secretary's office and will appreciate being advised of name and address of any doctor not included. We have not indicated rank or service because information has not been complete in regard to some.

Name	*Address*
Allen, Albert Lanham, NP	Roxboro
Anderson, Elbert Carl, GP	Wilmington
Anderson, John Bascom, GP	Asheville
Andes, Thomas Eugene, S.	Leaksville
Apple, Elbert Dwight	Greensboro
Armentrout, Charles Henry, I.	Asheville
Armistead, Drury Branch, I.	Greenville
*Arnold, Ralph Aranovitz, OALR	Durham
Aycock, Edwin Burtis	Greenville
Bacon, Harold Lyle	Bryson City
Bailey, Robert Liston, Jr.	Winston-Salem
Barefoot, William Frederick, S.	Wilmington
Barnes, Henry Eugene, Jr., C.	Hickory
Baxley, Raiford Douglas	Washington
Benbow, Edgar Vernon, S.	Winston-Salem
Benbow, John Thomas	Winston-Salem
Bender, John Joseph, GP	Red Springs
Benson, Norman Oliver, U.	Lumberton
Benton, George Ruffin, Jr.	Goldsboro
Benton, Wayne Jefferson, T.	Greensboro
Biggs, John Irvin, ObG.	Lumberton
Bittinger, Charles Lewis	Mooresville
Black, Paul Adrian Lawrence	Wilmington
Bland, Charles Atlas	Forest City
Blumberg, Alfred, Path.	Asheville
Bolus, Michael, D.	Raleigh
Boney, Elwood Rantz	Kinston
Bostic, William Chivous, Jr.	Forest City
Bradford, George Edwin, ALR	Winston-Salem
Bradley, Harold John	Brevard
Brewton, William Allan, Ind.	Enka
Bridges, Dwight Thomas	Lattimore
Briggs, Henry Harrison, Oph.	Asheville
Britt, Charles Summey, Ob.	Charlotte
Brooks, Ernest Bruce, I.	Winston-Salem
Brookshire, Harley Gaskill, Jr.	Enka
Brown, Clark Edward, Path.	Chapel Hill
Brown, James Steven, Jr., S.	Hendersonville
*Brown, Landis Gold, S.	Southport
*Brown, William Moye Benjamin, ALR	Greenville
Brunson, Edward Porcher, S.	Albemarle
Bumgarner, John (Prisoner of Japanese)	N. Wilkesboro
Bunch, Charles, S.	Charlotte
Bundy, William Lumsden	N. Wilkesboro
Bunn, James Harry, Jr., PH.	Smithfield
Bunn, Richard Wilmot	Winston-Salem
Bunts, Robert Carl, U.	Asheville
Burwell, John Cole, Jr., ObG.	Greensboro
*Byerly, James Hampton, GP	Sanford
Byrnes, Thomas Henderson, Path.	Charlotte
Calder, Duncan Graham, Jr.	Concord
Cannon, Eugene Bolivia	Asheboro
Cannon, Edward Gaine, GP.	Hope Mills
Carlyle, John Bethune, Ind.	Burlington
Carrington, Samuel Macon, S.	Oxford
Cekada, Emil Bogomir, I.	Durham
Chadwick, William Stewart	Beaufort
Cherry, James Henderson, Or.	Asheville
Chiles, George Glasgow, S.	Sanford
Clapp, Hubert Lee, GP.	Swannanoa
Clark, Harold Stevens, S.	Asheville
Cloninger, Kenneth Lee, ALR.	Conover
Cogdell, David Melvin	Fayetteville
Cooley, Samuel Studdiford, GP.	Black Mountain
Cornell, William Sessions	Charlotte
Corwin, Warren Coons	Greensboro
Cox, Alexander McNeil	Madison
Cox, Samuel Clements, GP	Kerr
Cozart, Benjamin Franklin	Reidsville
Craig, Robert Lawrence, N.	Durham
*Craig, Sylvester Douglas (Hon.) I.	Winston-Salem
Cranz, Oscar William, S.	Kinston
Craven, Erle Bulla, Jr., I.	Lexington
Craven, Frederick Thorns	Concord
Cree, Maurie Bertram, S.	Concord
Creech, Lemuel Underwood, GP.	High Point
Crispell, Raymond S., Psy.	Durham
Cromartie, William James	Elizabethtown
*Croom, Robert DeVane, Jr.	Maxton
Crump, Cecil Lavon, OALR.	Asheville
Currie, Daniel Smith, Jr.	Fayetteville
Davis, John Preston	Winston-Salem
Davis, Philip Bibb, GP.	High Point
Dawson, Alonzo Ray	Greensboro
DeCamp, Allen Ledyard, ObG.	Fayetteville
Dees, Daniel Alfonso (Hon.) OALR.	Bayboro
Denholm, John Sinclair	Burlington
Deyton, John Wesley	Asheville
Dougherty, John Henry, U.	Asheville
Dryden, James Spencer, OALR.	Raleigh
Dula, Frederick Mast, S.	Lenoir
Eckbert, William Fox	Crossnore
Edgerton, Glenn Souders	Statesville
Edmondson, Frank, Jr., GP.	Tarboro
Elfmon, Samuel Leon, GP.	Fayetteville
*Elliott, Julian Carr, S.	Oxford
Erickson, Cyrus Conrad, Path.	Durham
Faison, Thomas Gideon	Winton
Fales, Robert Martin, GP.	Wilmington
Falls, Fred	Lawndale
Farmer, William Anderson	Fayetteville
*Farmer, William Dempsey, OALR.	Greensboro
Farrington, Joseph Allison Jackson	Thomasville
Fay, Oliver Frederick, OALR.	Wilmington
Felton, Robert Lee, Jr., GP.	Carthage
*Fenner, Edwin Ferebee (Hon.)	Henderson
Fleming, Laurence Edwin, S.	Charlotte
*Fleming, Ralph Gibson, GP.	Durham
Floyd, Anderson Gayle, GP.	Whiteville
Flythe, William Henry, GP.	High Point
Forrest, Daniel Efland, GP.	Hillsboro
Fox, Dennis Bryan	Greensboro
Fox, Norman Albright, GP.	Greensboro
Frazier, John Wesley, Jr.	Salisbury
Fritz, William Abel	Hickory
Fuller, Henry Fleming	Kinston
Furgurson, Ernest Whitmal	Plymouth
*Gardner, Clarence Ellsworth, Jr., S.	Durham
Garrard, Robert Lemley	Greensboro
Gay, Charles Houston	Charlotte
Gillespie, Samuel Crawford, I.	Asheville
Glascock, Harold Winfield, Jr., GP.	Raleigh
Glasser, John William Henry	Graham
Goley, Willard Coe, G.	Graham
Goswick, Harry Wilson, Jr.	Winston-Salem
Graham, Charles Pattison, S.	Wilmington
Greene, James Verdery	Fayetteville
Griffin, Harold Walker, OALR.	Hickory
Griffis, John William	Denton
Haar, Frederick Behrend, Pd.	Greenville
Hall, Edgar Milton, Jr.	Raleigh

* Present at 1943 meeting.

Name	Address
Hammond, Alfred Franklin, Jr.	Grifton
Hamrick, John Carl, S.	Shelby
Harden, Boyd	Burlington
Hardin, Parker Calhoun, S.	Monroe
Harmon, Raymond Harris	Boone
Harney, James Norman	High Point
Harrill, Henry Clay	Greensboro
Harris, Isaac E., Jr., S.	Durham
Harrison, Edward Thorne, S.	High Point
Hart, Oliver James, U.	Winston-Salem
Hartman, Bernhard Henry, Pd.	Asheville
Hawes, George Aubrey	Charlotte
Hawes, James Beebe, OALR	Greenville
Helms, Jefferson Bivins, S.	Morganton
Helsabeck, Belmont Augustus	Winston-Salem
Herring, Tilghman	Wilson
Hickman, Harry Stuart	Lenoir
Hill, Abel Le Compte	Kings Mountain
Hitch, Joseph Martin, D.	Raleigh
Holbrook, Joseph Samuel, GP	Statesville
Holladay, Lewis Winston	High Point
Hooker, John Samuel	Chapel Hill
Horack, Harold Maclachlan	Durham
Hudgins, Herbert Andrew	Rutherfordton
Hunter, William Blair, PH.	Lillington
Jacobs, Julian Erich John, Or.	Charlotte
James, Albert Warren, S.	Laurinburg
Jervey, William St. Julien	Tryon
Johnson, Gaston Frank, I.	Spray
Johnston, William Oliver	Charlotte
Jones, Otis Hunter, Ob.	Charlotte
Jones, Roderic Orlando	Burnsville
Jones, Thomas Thweatt, GP	Durham
Jordan, William Pritchard, GP	Windsor
*Kendall, John Harold	Richlands
Kendrick, Charles Mattox, I.	Valdese
Kennedy, Leon Toland, PH.	Winston-Salem
Ketchie, James Meredith	Salisbury
Killian, Frank McClure, OALR	Franklin
Knoefel, Arthur Eugene, Jr., GP.	Black Mountain
Lackay, Ralph Howard	Fayetteville
Lancaster, Forrest Jackson	Lexington
Lancaster, Newton Faris, GP.	Waynesville
Lanier, Verne Clifton	Welcome
Lapsley, Alberti Fraser, GP.	Badin
Lassiter, Will Hardee, Jr., GP.	Selma
Lawson, George William	Graham
LeBauer, Maurice Leon, S.	Greensboro
Lewis, Walter Glenn	Stokesdale
Lihn, Henry, GP.	Fairmont
Lohr, Dermot, GP.	Lexington
Long, William Matthews, S.	Mocksville
Lore, Ralph Eli, S.	Lenoir
Lott, William Clifton, U.	Asheville
Lyon, Brockton Reynolds	Greensboro
MacRae, John Donald, R.	Asheville
Makepeace, Alexander Watts, PH.	Chapel Hill
Manning, Isaac Hall, Jr., I.	Durham
Markham, Blackwell, S.	Durham
Marshall, James Flournoy, S.	Winston-Salem
*Martin, Benjamin Franklin, GP.	Winston-Salem
Martin, Lester Poindexter, S.	Mocksville
Martin, William Francis, S.	Charlotte
Matros, Nathaniel Hamilton, S.	Oteen
Matthews, William Camp	Davidson
*Mauzy, Charles Hampton, Jr., ObG.	Winston-Salem
May, William Pickford	Winston-Salem
McCall, William Herbert	Asheville
McCracken, Marvin Howell, GP.	Asheville
McCracken, Joseph Pickett	Durham
McCutcheon, William Benson, S.	Durham
*McDonald, Angus Morris, U.	Charlotte
McDonald, Lester Bowman, GP.	Hendersonville
McDonald, Robert Lacy, GP.	Thomasville
McDowell, Harold Clyde, Or.	Winston-Salem

Name	Address
McFadyen, Oscar Lee, Jr.	Fayetteville
McGrath, Frank Bernard, Pd.	Lumberton
McGuffin, William Christian	Asheville
McIntosh, Donald Munro, Jr.	Marion
McKee, John Sasser, Jr.	Morganton
McKee, Lewis Middleton, GP.	Durham
McLaughlin, Calvin Sturgis, Jr.	Charlotte
McLeod, Neill Henry, Jr., GP.	Raleigh
McManus, Hugh Forrest, Jr.	Raleigh
McNeill, James Hubert, I.	N. Wilkesboro
Meriwether, Benjamin Morsell, S.	Asheville
Merritt, Jesse Fred	Greensboro
Mickley, Jack, GP.	Tabor City
Miller, Warren Edwin, S.	Whiteville
Mills, Charles Rose, Oph.	Greensboro
Mitchell, Landis Patterson	Spindale
Mock, Charles Glenn	Salisbury
Montgomery, John Christian, Anes.	Charlotte
Moore, Ernest Victor, Pd.	Earl
Moore, Henry Blanchard, G.	Graham
Moore, Roy Hardin, GP.	Canton
Moorefield, Robert Hoyle	N. Kannapolis
Munroe, Henry Stokes, Jr., S.	Charlotte
*Murphy, Gibbons Westbrook, R.	Asheville
Myers, Holland Thomas	Lexington
Naumoff, Philip	Charlotte
Newland, Charles Logan, S.	Brevard
Norfleet, Charles Millner, Jr., U.	Winston-Salem
Norton, John William Roy, PH.	Chapel Hill
Nowlin, George Preston, S.	Charlotte
Odom, Robert Taft	Winston-Salem
Ogburn, Lundie Calvin, ObG.	Winston-Salem
Osborne, Joseph Evans, S.	Rosman
Owen, Duncan Shaw, I.	Fayetteville
Padgett, Charles King	Shelby
Padgett, Philip Grover, Pd.	Kings Mountain
Palmgren, Einar Alexander, Jr.	Charlotte
Parker, Shepherd Falkener	Shelby
Parks, William Craig, Jr.	High Point
Parrette, Richard Grenville	Robbinsville
Parrott, John Arendall	Kinston
Pate, Archibald Hanes	Goldsboro
Patterson, Fred Geer, GP.	Chapel Hill
Patton, William Hugh, Jr., GP.	Morganton
Peacock, Roy Merritt	Weaverville
Pearse, Richard Lehmer, ObG.	Durham
Pearson, Arthur A.	Fletcher
Peasley, Elmus Day, Path.	Raleigh
Peele, James Clarendon	Goldsboro
Perry, Glenn Grey, GP.	High Point
*Persons, Elbert Lapsley, I.	Durham
Peters, David Boteler	Raleigh
Phelps, John Mahlon	Creswell
Pittman, William Austin, U.	Fayetteville
Pitts, William Reid, S.	Charlotte
Plummer, David Edwin, PH.	Durham
Pollack, David, GP.	Hobgood
Poole, Marvin Bailey	Dunn
Powell, Herman Sutton, GP.	Gastonia
Price, Homer Hayden	Draper
Propst, James Herman	Graham
Query, Richard Zimri, Jr.	Charlotte
Rand, Emmett Gladstone	Raleigh
Reavis, Charles William, R.	Kinston
Redwine, James Daniel	Lexington
Register, John Francis, Or.	Greensboro
Reque, Paul Gerhard	Durham
Richie, Richard Frank, P.	Raleigh
Roberson, Foy (Hon.) S.	Durham
Roberts, Louis Carroll, U.	Durham
Roberts, Roy Foster, GP.	Asheville
Robertson, Carroll Bracey	Jackson
*Robertson, Edwin Mason, S.	Durham
Robertson, John Newton, OALR.	Fayetteville
Robertson, Lloyd Harvey	Salisbury

* Present at 1943 meeting.

Name	Address
Rodman, Robert Boyd, A	Wilmington
Rogers, Gaston Wilder, PH	Chapel Hill
Rollins, Charles Dick	Henderson
Rollins, Vance Benton	Henderson
*Roper, William Hamilton, T	Sanatorium
Rose, John Andrew	Winston-Salem
Rosenbaum, Maurice Milton, S	Shallotte
*Ross, Robert Alexander, ObG	Durham
Ross, Thomas Wallace	Charlotte
*Royster, Chauncey Lake	Raleigh
Ruark, Robert James, ObG	Raleigh
Rubin, Adrian Stevens	Greensboro
Rudd, James Colegate	Greensboro
Rudd, Paul Dalton, I	Reidsville
Rude, Joe C	Durham
Ruffin, David Winston, GP	Pink Hill
Ruffin, Jennings Bryan	Ahoskie
Russell, William Marler, OALR	Asheville
Sader, Julius, GP	Brevard
Sanger, W. Paul	Charlotte
Schoenheit, Edward William, I	Asheville
Schulze, William	Durham
Senter, William J	Atlanta, Ga.
Shelburne, Palmer Augustine	Greensboro
Shuford, Jacob Harrison	Hickory
Sikes, Charles Henry	Greensboro
Sinclair, Lewis Gordon, S	Raleigh
Sinclair, Roby Thomas, Jr	Whiteville
Sloan, William Stringfield, I	Wilson
Smith, Dudley Winn, GP	Waynesville
Smith, Edward Barney	Elizabeth City
Smith, John Goodrich, I	Rocky Mount
Smith, Opie Norris, I	Greensboro
Smith, Randall Collins	Ayden
Smith, Robert Edwin	Mt. Airy
Smith, Roy Meadows	Greensboro
Sowers, Roy Gerodd	Jonesboro
Sox, Carl Caughman, GP	Kenly
Stelling, Richard Nunnally	Greensboro
Stenhouse, Henry Merritt, Oph	Goldsboro
Stephenson, Bennett Edward, GP	Weldon
Stevens, Joseph Blackburn, I	Greensboro
Stewart, Daniel Niven, Jr	Hickory
Stone, Robert Edward	Chapel Hill
Straughan, John William	Warsaw
Strickland, Horace Gilmore	Greensboro
Stringfield, Thomas, Jr., GP	Waynesville
Stroupe, Albertus Ula, Jr	Mt. Holly
Stutz, Malcolm Greer	Southern Pines
Sullivan, Daniel Joseph, P	Asheville
Sullivan, Joseph Timothy, GP	Asheville
Sullivan, Victor Thaddeus, GP	Wilmington
Sykes, Joy Verle	Rocky Mount
Sykes, Ralph Judson, PH	Raleigh
Tannenbaum, Abraham Jack	Greensboro
Tart, Baston Isaiah, Jr	Goldsboro
Tatum, Roy Carroll	Statesville
Taylor, Andrew DuVal	Charlotte
Taylor, Charles Whitfield	Hollister
Taylor, Rives Williams	Oxford
Taylor, Thomas Jefferson	Roanoke Rapids
Teasdale, Laurie Redmond	Charlotte
Temple, Rufus Henry, I	Kinston
Thomas, Walter Lee, ObG	Durham
Thomas, William Clyde, GP	Siler City
Thompson, William Nelson	Raleigh
Thornhill, Edwin Hale	Durham
Tice, Walter Thomas	High Point
Troutman, Baxter Suttles	Lenoir
Turrentine, Kilby Pairo, I	Kinston
Tyndall, Robert Glenn, S	Kinston
Tyson, John Joyner	Greenville
Tyson, Thomas David, Jr., ObG	High Point
Tyson, Woodrow Wilson	Mebane
Upchurch, Thaddeus Gilbert, GP	Smithfield
Walton, Cyrus Leslie, Ob	Glen Alpine
Ward, Needham Edgar, G	Greenville
Ward, Wallace Clyde	Raleigh
Ward, Walter Elliott	Robersonville
Warwick, Hight Claudius	Greensboro
Washburn, Chivous Yulan, GP	Mooresboro
Way, Samuel Eason, S	Rocky Mount
Webster, Nelson Mortimer, Ob	Winston-Salem
Weinstein, Morton Hannah, GP	Fairmont
Westcott, William Emerson, S	Asheville
Westmoreland, Joseph Robert, GP	Canton
Whaley, James Davant, U	Hickory
Wharton, Charles Watson, GP	Smithfield
Whicker, Max Evans	China Grove
White, Thomas Preston, I	Charlotte
Whittington, Claude Thomas	Greensboro
Williams, Charles Frederick, Pd	Raleigh
Williams, John Dudley, Jr	Greensboro
Williams, McChord, S	Charlotte
Willis, Candler Arthur	Candler
Wilson, Frank, Jr., S	Raleigh
Wilson, Samuel Allen	Lincolnton
Wilson, Stephen Glenn	Angier
Winston, Patrick Henry	Clarksville, Va.
*Wisely, Martin Robert	Edenton
Wolfe, Ralph Verlon, GP	Winston-Salem
Wood, George Thomas, S	High Point
Woodhall, Maurice Barnes, NS	Durham
Woody, John Wyckliffe Austin	Tryon
Worley, James Harr	Asheville
Wright, James Rhodes, OALR	Raleigh
Wyatt, Arthur Thomas	Lillington

* Present at 1943 meeting.

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ObG—Obstetrics, Gynecology
Oph—Ophthalmology
Or—Orthopedic Surgery
P—Psychiatry
PN—Psychiatry, Neurology
Path—Pathology
Pd—Pediatrics
PH—Public Health
Phar—Pharmacology
Phy—Physiology
Pr—Proctology
R—Roentgenology, Radiology
S—Surgery
T—Tuberculosis
U—Urology

ROSTER OF FELLOWS FOR 1943

By Counties

NOTE: We have endeavored to secure correct information in regard to every physician whose name is listed. Anyone finding an error should report it immediately to the Secretary of the State Society.

ALAMANCE-CASWELL COUNTIES SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President: Walker, John Barrett, Burlington; Med. Coll. of Va., 1914	1914	1916
Secretary: Greene, Phares Yates, Graham; Northwestern, 1932	1932	1934
Anderson, Charles Alexander (Hon.), Burlington; Coll of P. & S., Baltimore, 1893	1893	1896
Bell, Felix Ortan, Burlington; Atlanta Med. Coll., 1918	1921	1928
Braddy, Wade Hampton (Hon.), Burlington; Univ. of N. C., 1909	1909	1913
Brooks, Ralph Elbert, Burlington; Jefferson, 1920	1920	1922
**Carlyle, John Bethune, Burlington; Jefferson, 1926	1926	1928
Carrington, George Lunsford, Burlington; Johns Hopkins, 1920	1920	1925
**Denholm, John Sinclair, Burlington; Duke, 1935	1937	1938
Ellington, Amzi Jefferson, Burlington; Columbia, 1915	1915	1917
**Glasser, John William Henry, Graham; Johns Hopkins, 1937	1940	1942
**Goley, Willard Coe, Graham; Univ. of Pa., 1924	1924	1926
Gwynn, Houston LaFayette, Yanceyville; Med. Coll. of Va., 1923	1923	1925
**Harden, Boyd, Burlington; Univ. of Pa., 1928	1931	1931
Harden, Graham, Burlington; Univ. of Pa., 1919	1920	1922
Harper, Frank Trumbo, Jr., Graham; Med. Coll. of Va., 1934	1934	1936
Johnson, Joseph Lewis, Graham; Jefferson, 1926	1926	1930
**Lawson, George William, Graham; Long Island Coll. of Med., 1935	1935	1938
Lupton, Carroll Crescent, Burlington; Temple, 1931	1931	1934
Lupton, Emmett Stevenson, Graham; N. Y. Univ., 1938	1938	1940
Malloy, Stephen A. Douglas (Hon.), Yanceyville; Ky. Sch. of Med., 1897	1898	1903
McDade, Brodie Banks, Burlington; Univ. of Md., 1918	1918	1920
McLamb, George Thomas, Mebane; Univ. of Tenn., 1938	1941	1942
McPherson, Charles Wade (Hon.), Burlington; Univ. of Md., 1910	1910	1912
McPherson, Robert Gray (Hon.), Saxapahaw; Univ. of N. C., 1908	1908	1909
Montgomery, Harry Maurice (Hon.), Burlington; N. C. Med. Coll., 1903	1903	1904
**Moore, Henry Blanchard, Graham; Jefferson, 1920	1920	1923
Pickett, John A. (Hon.), Burlington; Univ. of Tenn., 1894	1894	1904
**Propst, James Herman, Graham; Univ. of Pa., 1938	1939	1942
Robinson, Donald Edward, Burlington; Harvard, 1927	1929	1930
Scott, Samuel Floyd, Burlington; Univ. of Pa., 1918	1918	1920
Simmons, Alexander Wingate, Burlington; Jefferson, 1939	1939	1940
Simpson, Henry Hardy, Elon; Univ. of Md., 1925	1925	1926
Smith, Fitzhugh Lee, Burlington; Univ. of Pittsburgh, 1927	1927	1928
Spoon, Samuel Clarence, Burlington; Univ. of Md., 1918	1918	1920
Troxler, Raymond Moody, Burlington; Univ. of Md., 1914	1914	1915
Tyson, Thomas D. (Hon.), Mebane; Univ. Coll. of Med., Richmond, 1899	1899	1904
**Tyson, Woodrow Wilson, Mebane; Med. Coll. of Va., 1935	1935	1938
Walters, Charles Manley (Hon.), Burlington; Univ. of Md. and Coll. of P. &. S., Baltimore, 1908	1908	1909
Warren, Robert Franklin (Hon.), Prospect Hill; Atlanta Sch. of Med., 1911	1911	1912
Wilkins, Java Cleveland, Haw River; Univ. of Md., 1911	1911	1920

ALEXANDER—SEE IREDELL-ALEXANDER

ALLEGHANY—SEE WILKES-ALLEGHANY

ANSON COUNTY SOCIETY

President: Sorrell, Furman Yates, Wadesboro; Jefferson, 1930	1930	1933
Secretary: Kress, Jacob Himi, Wadesboro; Med. Coll. of Va., 1936	1938	1939
Allen, Charles Insley, Wadesboro; Columbia, 1913	1913	1922
Bennett, Joseph Hammond (Hon.), Wadesboro; Univ. of Md., 1894	1894	1904
Carter, Warren Dallas, Morven; Med. Coll. of S. C., 1934	1935	1936
Covington, James Madison, Jr., Wadesboro; Duke, 1938	1940	1942
Davis, James Matheson, Wadesboro; Columbia, 1913	1913	1920
Kress, Esta Joyce Levy, Wadesboro; Med. Coll. of Va., 1935	1938	1939
Ulloth, Gustave, Ansonville; Coll. of Med. Evangelists, 1932	1939	1941
Wallin, Loren, Wadesboro; Univ. of Tenn., 1909	1909	1938

ASHE—SEE WATAUGA-ASHE

** Denotes Fellows in Service

AVERY COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President:		
Secretary: Brown, James Arthur, Banner Elk; Tulane, 1934	1934	1938
Burleson, William Brown, Plumtree; Univ. of Md., 1915	1915	1916
**Eckbert, William Fox, Crossnore; Duke, 1939	1941	1942
Fink, Emma Sloop, Crossnore; Vanderbilt, 1936	1938	1938
Moffett, Alexander Stuart, Banner Elk; Vanderbilt, 1932	1942	1943
Sloop, Eustace H. (Hon.), Crossnore; N. C. Med. Coll., 1905; Jefferson, 1908	1905	1907
Tate, William Cummings (Hon.), Banner Elk; Tenn. Med. Coll., 1908	1909	1912

BEAUFORT COUNTY SOCIETY

President:		
Secretary: Larkin, Ernest Waddill, Washington; Med. Coll. of Va., 1917	1920	1922
**Baxley, Raiford Douglas, Washington; Rush Med. Coll., 1940	1941	1942
Bonner, John Bryan, Aurora; Univ. of Md., 1918	1918	1920
Carter, Henry Walton (Hon.), Washington; Univ. of Va., 1895	1895	1910
Ford, David Emerson, Washington; Univ. of Mich., 1908	1924	1925
Hackler, Robert Hardin, Jr., Washington; Jefferson, 1926	1926	1928
Nicholson, Plummer A. (Hon.), Washington; Coll. of P. & S., Baltimore, 1889	1889	1890
Peters, August Richard, Jr., Washington; Univ. of Ga., 1935	1938	1939
Ramsay, James Graham, Washington; Univ. of Pa., 1922	1924	1924
Swindell, Lewis Holmes, Jr., Washington; Univ. of Pa., 1916	1916	1919
Tayloe, John Cotten, Washington; Univ. of Pa., 1922	1924	1925
Underwood, Millard Kersey, Belhaven; Med. Coll. of Va., 1937	1937	1939
Winstead, Ellis Grey, Belhaven; Med. Coll. of Va., 1929	1929	1930

BERTIE COUNTY SOCIETY

President: Norfleet, Edgar Powell, Roxobel; Med. Coll. of Va., 1914	1914	1920
Secretary: Garriss, Frank Henry, Lewiston; Jefferson, 1912	1912	1918
Castellow, Cola, Windsor; Univ. of Pa., 1917	1917	1926
Jackson, John McIver, Windsor; Geo. Washington Univ., 1933	1941	1943
**Jordan, William Pritchard, Windsor; Univ. of Md., 1935	1935	1939
Saunders, Sheldon Asa, Aulander; Jefferson, 1914	1914	1918
Smith, Joseph Elmer, Windsor; Med. Coll. of Va., 1921	1921	1922

BLADEN COUNTY SOCIETY

President: Singletary, George Currie, Clarkton; Univ. of Pa., 1917	1917	1918
Secretary: Glenn, Channing, Elizabethtown; Med. Coll. of Va., 1933	1936	1939
Bridger, Dewey Herbert, Bladenboro; Jefferson, 1922	1922	1925
Clark, DeWitt Duncan, Clarkton; Med. Coll. of Va., 1917	1917	1920
Cromartie, Robert S. (Hon.), Elizabethtown; N. C. Med. Coll., 1900	1900	1906
**Cromartie, William James, Elizabethtown; Emory, 1939	1939	1943
Hutchinson, Sankey Smith (Hon.), Bladenboro; N. C. Med. Coll., 1911	1911	1912

BRUNSWICK COUNTY SOCIETY

BUNCOMBE COUNTY SOCIETY

President: Pendleton, Wilson, Asheville; Univ. of Va., 1908	1919	1920
Secretary: Carr, Eugene Morrison, Asheville; Johns Hopkins, 1919	1926	1927
**Anderson, John Bascom, Asheville; Univ. of Md., 1935	1935	1938
Archer, Isaac James (Hon.), Black Mountain; Northwestern, 1896	1905	1907
**Armentrout, Charles H., Asheville; Med. Coll. of Va., 1931	1940	1941
Baier, George Frederick, Jr., Asheville; Hahnemann Med. Coll., 1906	1920	1930
Beall, Louis Girardeau (Hon.), Black Mountain; N. C. Med. Coll., 1906	1906	1906
Belcher, Cecil Cullen, Asheville; Tulane, 1930	1939	1940
Bell, L. Nelson, Swannanoa; Med. Coll. of Va., 1916	1941	1942
Bigger, John Dinsmore, Swannanoa; Kansas Univ., 1911	1942	1943
Bittinger, Samuel Moffett, Black Mountain; Geo. Washington Univ., 1918	1924	1924
**Blumberg, Alfred, Asheville; Univ. of Colorado, 1923	1928	1929
**Brewton, William Allan, Enka; Univ. of Pa., 1927	1927	1929
**Briggs, Henry Harrison, Asheville; Yale, 1931	1933	1934
Brookshire, Harley Gaskill (Hon.), Asheville; N. C. Med. Coll., 1905	1905	1906
**Brookshire, Harley Gaskill, Jr., Enka; Tulane, 1940	1940	1941
Brown, Kermit English, Asheville; Jefferson, 1927	1927	1930
Brownsberger, Ethel May, Biltmore; Coll. of Med. Evangelists, 1927	1933	1934
Brownsberger, John Failor, Fletcher; Coll. of Med. Evangelists, 1925	1928	1929
Buckner, James Marion (Hon.), Swannanoa; Univ. of N. C., 1909	1909	1912
**Bunts, Robert C., Asheville; Med. Coll. of Va., 1931	1938	1939
Burton, Claude Naylor, Asheville; Univ. of Cincinnati, 1936	1938	1938
Carr, Catherine C., Biltmore; Johns Hopkins, 1919	1942	1942

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Chapman, Edwin James, Asheville; Northwestern, 1928	1939	1940
**Cherry, James Henderson, Asheville; Duke. 1933	1939	1941
**Clapp, Hubert Lee, Swannanoa; Univ. of Ga., 1937	1938	1938
**Clark, Harold Stevens, Asheville; Univ. of Pa., 1922	1922	1924
Cocke, Charles Hartwell (Hon.), Asheville; Cornell, 1905	1912	1913
Cocke, Jere Ellis (Hon.), Asheville; Louisville Med. Coll., 1905	1905	1906
**Cooley, Samuel Studdiford, Black Mountain; N. Y. Univ., 1934	1934	1938
Craddock, Alva Brown, Asheville; Johns Hopkins, 1918	1923	1924
Croom, Gabe Holmes, Asheville; N. C. Med. Coll., 1909	1909	1916
Crow, Samuel Leslie, Asheville; Emory, 1925	1926	1927
**Crump, Cecil Lavon, Asheville; Baylor Univ., 1930	1935	1936
Crump, George Curtis, Asheville; Harvard, 1926	1933	1934
**Deyton, John Wesley, Asheville; Rush Med. Coll., 1928	1930	1931
**Dougherty, John Henry, Asheville; N. Y. Univ., 1934	1936	1937
Eckel, O. F. (Hon.), Asheville; Med. Coll of S. C., 1906	1907	1908
Edwards, Bertie Oscar (Hon.), Asheville; N. C. Med. Coll., 1905	1905	1909
Elias, Lewis Weimer (Hon.), Asheville; Columbia, 1903	1906	1906
Feldman, Leon Henry, Asheville; Univ. of Md., 1934	1938	1938
Freeman, William Talmage, Biltmore; Univ. of Ga., 1917	1927	1929
**Gillespie, Samuel Crawford, Asheville; Univ. of Cincinnati, 1931	1935	1936
Grantham, Wilmer Lloyd (Hon.), Asheville; N. C. Med. Coll., 1906	1906	1908
Greene, Joseph Berry (Hon.), Asheville; Univ. of Va., 1893	1910	1911
Greenwood, Adolphus Barte, Asheville; Johns Hopkins, 1916	1916	1918
Griffin, Mark Alexander, Asheville; Jefferson, 1917	1917	1918
Griffin, William Ray, Asheville; Jefferson, 1910	1910	1917
Griffith, Franklin Webb (Hon.), Asheville; Johns Hopkins, 1906	1911	1912
Griffith, Lewie Muller, Asheville; Johns Hopkins, 1915	1916	1918
**Hartman, Bernhard Henry, Asheville; Yale, 1937	1941	1942
Henderson-Smathers, Irma Carlene, Asheville; Tulane, 1933	1934	1935
Hensley, Charles Albert, Asheville; Jefferson, 1917	1917	1927
Herbert, William P. (Hon.), Asheville; Univ. of Va., 1907	1910	1911
Hollyday, William Murray, Asheville; Univ. of Md., 1908	1914	1915
Huffines, Thomas Ruffin, Asheville; Indiana Univ., 1919	1922	1924
Huston, John Walter (Hon.), Asheville; Rush Med. Coll., 1904	1912	1913
Ivey, Robert Robbins, Asheville; Univ. of Ala., 1909	1921	1921
Johnson, Walter Royle, Asheville; Univ. of Minn., 1924	1933	1934
King, Edward, Asheville; Harvard, 1917	1921	1922
**Knoefel, Arthur Eugene, Jr., Black Mountain; La. State Univ., 1935	1935	1938
Lindberg, Oliver Spurgeon, Asheville; Coll. of Med. Evangelists, 1923	1925	1928
Lord, Margery Juline, Asheville; Univ. of Mich., 1916	1918	1919
**Lott, William Clifton, Asheville; Univ. of Colorado, 1929	1930	1931
**MacRae, John Donald, Asheville; Univ. of Pa., 1927	1927	1930
**Matros, Nathaniel Hamilton, Oteen; Marquette Univ., 1930	1933	1934
McCall, Alvin Clay, Asheville; Univ. of Md., 1910	1910	1914
**McCall, William Herbert, Asheville; Med. Coll. of Va., 1938	1941	1941
**McCracken, Marvin Howell, Asheville; Univ. of Louisville, 1930	1930	1940
McGowan, Joseph Francis, Asheville; Univ. of Md., 1929	1937	1939
**McGuffin, William Christian, Asheville; Coll. of Med. Evangelists, 1933	1935	1937
Mears, George Augustus, Asheville; Syracuse Univ., 1924	1924	1927
**Meriwether, Benjamin Morsell, Asheville; Univ. of Louisville, 1915	1915	1924
Millender, Charles White, Asheville; Tulane, 1919	1921	1924
Moore, Julian Alison, Asheville; Univ. of Pa., 1918	1918	1921
Morgan, Burnice Earl, Asheville; Univ. of Tenn., 1917	1921	1922
Morgan, Grady Alexander, Asheville; Univ. of Tenn., 1917	1920	1926
**Murphy, Gibbons Westbrook, Asheville; Emory, 1923	1923	1927
Norburn, Charles Strickland, Asheville; Univ. of Va., 1917	1921	1924
Norburn, Russell Lee, Asheville; Vanderbilt, 1925	1925	1927
Ormond, Allison Lee, Black Mountain; Jefferson, 1930	1930	1935
Orr, Charles Collins (Hon.), Asheville; Univ. of Md., 1904	1904	1905
Orr, Porter B. (Hon.), Asheville; Jefferson, 1901	1901	1904
Parker, George Farrar, Asheville; Univ. of Pa., 1923	1924	1926
**Peacock, Roy Merritt, Weaverville; Georgetown Univ., 1933	1938	1941
**Pearson, Arthur A., Fletcher; Coll. of Med. Evangelists, 1937	1939	1940
Reeves, Riley Jefferson, Leicester; Vanderbilt, 1913	1913	1922
Richardson, Frank Howard, Black Mountain; Cornell, 1906	1919	1920
Ringer, Paul Henry (Hon.), Asheville; Columbia, 1904	1906	1907
**Roberts, Roy Foster, Asheville; Tulane, 1933	1933	1935
**Russell, William Marler, Asheville; Univ. of Cincinnati, 1928	1931	1932
Schaffle, Karl, Asheville; Univ. of Pa., 1907	1926	1927
**Schoenheit, Edward William, Asheville; Jefferson, 1920	1920	1921
Sevier, Joseph Thomas (Hon.), Asheville; Jefferson, 1895	1895	1899
Shuford, Mary Frances, Asheville; Rush Med. Coll., 1934	1934	1935

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Sisk, Wilfred Nixon, Asheville; Univ. of Wisc., 1935	1940	1940
Smith, Bernard Reid, Asheville; Jefferson, 1911	1913	1914
Sprinkle, Charles Nichols, Weaverville; Jefferson, 1910	1910	1922
**Sullivan, Daniel Joseph, Asheville; Temple, 1934	1940	1940
**Sullivan, Joseph Timothy, Asheville; N. Y. Univ., 1933	1935	1937
Swann, Cecil Collins, Asheville; Tulane, 1926	1930	1931
Tennent, Gaillard S. (Hon.), Asheville; N. C. Med. Coll., 1894	1894	1898
Ward, John LaBruce, Asheville; Med. Coll. of S. C., 1905	1921	1922
Watkins, John Armstrong, Asheville; Tulane, 1910	1925	1926
Weaver, William Jackson (Hon.), Asheville; Jefferson, 1898	1897	1903
Weizenblatt, Sprinza, Asheville; Vienniese Univ. of Med., 1922	1929	1931
**Westcott, William Emerson, Asheville; Coll. of Med. Evangelists, 1926	1930	1932
White, Robert Alexander, Asheville; Univ. of Cincinnati, 1918	1920	1921
Whitehead, Seba L., Asheville; Jefferson, 1921	1921	1929
Willis, Arthur Ponder (Hon.), Candler; Univ. of N. C., 1904	1904	1906
**Willis, Candler Arthur, Candler; Duke, 1936	1938	1938
Wood, Hagan Emmett, Black Mountain; Emory, 1922	1938	1939
**Worley, James Harr, Asheville; Univ. of Tenn., 1931	1934	1935
Young, John Clingman, Asheville; Univ. of Tenn., 1926	1926	1929

BURKE COUNTY SOCIETY

President: Saunders, John Rudolph, Morganton; Emory, 1926	1926	1931
Secretary, Arney, William Charles, Morganton; Univ. of Md., 1940	1942	1942
Billings, Gilbert M., Morganton; Tulane, 1919	1919	1920
Ervin, John Witherspoon, Morganton; Med. Coll. of Va., 1933	1935	1936
Goodwin-Barbour, Edith, Morganton; Woman's Med. Coll. of Pa., 1932	1934	1934
Hamer, Alfred Wilson, Morganton; Med. Coll. of S. C., 1921	1938	1940
**Helms, Jefferson Bivins, Morganton; Univ. of Pa., 1928	1928	1931
Kende, Tibor Norbert, Lakeland, Ky.; Royal Hungarian Univ., Budapest, Hungary, 1922	1927	1928
**Kendrick, Charles Mattox, Valdese; Duke, 1933	1939	1939
Kibler, William Herbert, Morganton; Univ. of Pa., 1914	1914	1918
Kirksey, James Jackson, Morganton; Univ. of Pa., 1921	1921	1923
McCampbell, John (Hon.), Morganton; Baltimore Med. Coll., 1894	1895	1899
**McKee, John Sasser, Jr., Morganton; Univ. of Pa., 1929	1929	1936
McLean, Allan (Hon.), Morganton; Univ. of Md., 1908	1908	1911
Oehlbeck, Luther William, Morganton; Univ. of Rochester, 1930	1939	1939
Palmer, Yates Shuford, Valdese; Med. Coll. of Va., 1931	1931	1933
**Patton, William Hugh, Jr., Morganton; Univ. of Pa., 1937	1937	1940
Riddle, Joseph Bennett (Hon.), Morganton; Vanderbilt, 1898	1904	1904
Taylor, Erasmus Hervey Evans, Morganton; Tulane, 1924	1924	1925
Taylor, John Eldredge, Morganton; Med. Coll. of Va., 1922	1929	1930
Vernon, James William (Hon.), Morganton; Jefferson, 1909	1909	1913
**Walton, Cyrus Leslie, Glen Alpine; Med. Coll. of Va., 1931	1931	1933
Wilder, Raboteau Terrell, Glen Alpine; Temple, 1941	1941	1942

CABARRUS COUNTY SOCIETY

President: Morris, Rae Henderson, Concord; Jefferson, 1929	1929	1932
Secretary: Tuttle, Marler Slate, Kannapolis; Temple, 1938	1938	1940
Adams, Fletcher Ruff, Concord; Med. Coll. of S. C., 1935	1936	1942
Bangle, James Alexander, Concord; N. C. Med. Coll., 1916	1916	1920
Barnhardt, Albert Earl, Kannapolis; Univ. of Md., 1933	1933	1941
Barrier, Henry Webster, Concord; Chicago Med. Sch., 1921	1931	1936
Bethel, Millard Baimbridge, Concord; Univ. of Tenn., 1936	1938	1942
Brandon, Wesley Otis, Concord; Med. Coll. of Va., 1928	1929	1932
Brantley, Thomas H., Concord; Med. Coll. of S. C., 1936	1936	1939
Burns, Joseph Eugene, Concord; Med. Coll. of Va., 1923	1923	1928
Busby, Julian, Kannapolis; Johns Hopkins, 1931	1931	1937
**Calder, Duncan Graham, Jr., Concord; Univ. of Pa., 1936	1940	1940
**Craven, Frederick Thorns, Concord; N. Y. Univ., 1938	1938	1940
**Cree, Maurie Bertram, Concord; Duke, 1934	1939	1940
Floyd, William Russel, Concord; Jefferson, 1929	1936	1938
Ketner, Fred Yadkin, Concord; Med. Coll. of Va., 1928	1929	1930
King, Richard Morrison (Hon.), Concord; Jefferson, 1903	1903	1906
Lubchenko, Nicholas E., Harrisburg; N. C. Med. Coll., 1915	1915	1916
MacFadyen, Paul Rutherford, Concord; Univ. of Va., 1929	1929	1932
Maulden, Paul Ranzo, Kannapolis; N. Y. Univ., 1932	1932	1934
Monroe, Lance Truman, Kannapolis; N. Y. Univ., 1932	1937	1938
Nolan, James Onslow, Kannapolis; Jefferson, 1921	1921	1922
Smoot, James Edward (Hon.), Concord; Baltimore Med. Coll., 1893	1894	1902
Swann, Joseph Fuller (Hon.), Kannapolis; Coll. of P. & S., Baltimore, 1896	1896	1904

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Whicker, Guy Lorraine, Kannapolis; Univ. of Md., 1926	1926	1928
White, Estus, Kannapolis; Tulane, 1926	1926	1940
Yow, Daniel Eugene, Concord; Temple, 1935	1935	1937
Yow, Ira A. (Hon.), Concord; N. C. Med. Coll., 1906	1906	1910

CALDWELL COUNTY SOCIETY

President: Byerly, Wesley Grimes, Lenoir; Med. Coll. of Va., 1924	1924	1925
Secretary: Hamer, Douglas, Jr., Lenoir; Med. Coll. of S. C., 1927	1927	1930
Bass, Beaty Lee, Lenoir; Tulane, 1939	1939	1943
Blackwelder, Verne Hamilton, Lenoir; Univ. of Pa., 1929	1929	1931
Corpening, Oscar J. (Hon.), Granite Falls; Univ. Coll. of Med., Richmond, 1906	1906	1906
**Dula, Frederick Mast, Lenoir; Vanderbilt, 1932	1934	1934
Fetner, Lawrence Merrill, Lenoir; N. C. Med. Coll., 1914	1914	1938
Goodman, Andy B. (Hon.), Lenoir; N. C. Med. Coll., 1898	1897	1904
Hagaman, Len Doughton, Lenoir; Univ. of Pa., 1936	1936	1938
Hedrick, Clyde Reitzel, Lenoir; Georgetown Med. Coll., 1925	1925	1926
**Hickman, Harry Stuart, Lenoir; Duke, 1938	1940	1942
Kent, Alfred Abraham, Sr. (Hon.), Winter Park, Fla.; Jefferson, 1885	1885	1894
Kent, Alfred Abraham, Jr., Granite Falls; Jefferson, 1931	1931	1934
**Lore, Ralph Eli, Lenoir; Rush Med. Coll., 1932	1933	1937
McNairy, Margaret Caroline, Lenoir; Woman's Med. Coll. of Pa., 1917	1917	1919
Rudisill, John David, Lenoir; Univ. of Md., 1922	1922	1923
Russell, Charles R., Granite Falls; Univ. Coll. of Med., Richmond, 1909	1909	1918
**Troutman, Baxter Suttles, Lenoir; Univ. of Md., 1936	1936	1939
Warfield, Mary Cabell, Blowing Rock; Woman's Med. Coll. of Pa., 1922	1928	1935
Wilson, Clarence L. (Hon.), Lenoir; Chattanooga Med. Coll., 1903	1903	1905

CAMDEN—SEE PASQUOTANK-CAMDEN-CURRITUCK-DARE

CARTERET COUNTY SOCIETY

Bonner, Kemp Plummer Battle (Hon.), Morehead City; Med. Coll. of Va., 1905	1905	1905
**Chadwick, William Stewart, Beaufort; Med. Coll. of Va., 1928	1928	1930
Hyde, Frank Edward, Beaufort; Western Reserve Univ., 1920	1925	1926
Royal, Benjamin F. (Hon.), Morehead City; Jefferson, 1909	1909	1912
Stevick, Charles Paul, Beaufort; Duke, 1936	1938	1943
Thompson, Sanford Webb, Jr., Morehead City; Med. Coll. of Va., 1913	1915	1922

CASWELL—SEE ALAMANCE-CASWELL

CATAWBA COUNTY SOCIETY

President:		
Secretary: Hambrick, Robert Theodore, Hickory; Tulane, 1923	1923	1924
**Barnes, Henry Eugene, Jr., Hickory; Univ. of Md., 1935	1935	1938
Caldwell, Lawrence McClure, Newton; Univ. of Pa., 1932	1932	1934
**Cloninger, Kenneth Lee, Conover; Univ. of Md., 1931	1931	1933
Cochrane, James Daniel, Newton; Univ. of Md., 1912	1912	1923
Fresh, William Maurice, Hickory; Medico-Chir. Coll. of Phila., 1906	1913	1919
**Fritz, William Abel, Hickory; Temple, 1933	1933	1934
Frye, Glenn Raymer, Hickory; Jefferson, 1921	1921	1923
**Griffin, Harold Walker, Hickory; Emory, 1923	1931	1932
Hunsucker, Charles Lamar, Hickory; N. C. Med. Coll., 1913	1913	1920
Jones, Frank Woodson, Newton; Med. Coll. of Va., 1934	1939	1940
Keever, James Woodfin, Hickory; Med. Coll. of Va., 1927	1927	1930
Lewis, John Sumter, Hickory; Med. Coll. of S. C., 1925	1927	1932
Long, Frederick Yount (Hon.), Catawba; N. C. Med. Coll., 1898	1898	1904
Long, Glenn, Newton; N. C. Med. Coll., 1912	1912	1915
Menzies, Henry Charles (Hon.), Hickory; N. C. Med. Coll., 1894	1894	1899
**Shuford, Jacob Harrison, Hickory; Univ. of Pa., 1936	1936	1942
**Stewart, Daniel Niven, Jr., Hickory; Univ. of Pa., 1935	1935	1938
**Whaley, James Davant, Hickory; Med. Coll. of S. C., 1925	1927	1936

CHATHAM COUNTY SOCIETY

President:		
Secretary: Wrenn, Grover Cleveland, Siler City; Med. Coll. of S. C., 1937	1937	1939
Earle, Jesse Burns, Siler City; Med. Coll. of Va., 1935	1935	1938
Mathieson, Kenneth Marlin, Pittsboro; Coll. of Med Evangelists, 1937	1938	1939
McBane, Thomas Womack, Pittsboro; Med. Coll. of Va., 1927	1927	1929
Patman, William Louis, Siler City; Harvard, 1921	1923	1926
**Rogers, Gaston Wilder, Chapel Hill; Birmingham Med. Coll., 1911	1937	1941
**Thomas, William Clyde, Siler City; Med. Coll. of Va., 1917	1917	1920

** Denotes Fellows in Service

CHEROKEE COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President: Whitfield, Bryan Watkins, Murphy; Tulane, 1920	1920	1935
Secretary: McDuffie, James Thomas, Jr., Murphy; Coll. of Med. Evangelists, 1939	1939	1940
Hoover, William Alonzo, Murphy; Univ. of Md., 1933	1933	1938
Miller, Harry, Murphy; Emory, 1934	1936	1938
Morrow, William Columbus, Andrews; Atlanta Sch. of Med., 1909	1909	1909
Parrette, Nettie Coffey, Robbinsville; Univ. of Tenn., 1934	1937	1941
**Parrette, Richard Grenville, Robbinsville; Univ. of Tenn., 1934	1936	1941
Scruggs, William Henry, Andrews; Univ. of Md., 1913	1915	1917
Staton, Leon Raphael, Hayesville; Univ. of Md., 1929	1929	1931
Taylor, Frank Victor, Murphy; N. C. Med. Coll., 1915	1915	1936
Whichard, Murphy Parmer, Murphy; Univ. of Md., 1910	1910	1918
Williams, Norton Lauriet, Murphy; Tufts Med. Coll., 1940	1942	1943

CHOWAN-PERQUIMANS COUNTIES SOCIETY

Brinn, Thomas Preston, Hertford; Univ. of Pa., 1923	1923	1927
Davenport, Carlton Alderman, Hertford; Univ. of Md., 1924	1924	1926
Powell, Jesse Averette (Hon.), Edenton; Coll. of P. & S., Baltimore, 1907	1908	1909
Vaughan, Roland Harris, Edenton; Univ. of Va., 1935	1938	1939
Ward, Ivie Alphonso, Hertford; Univ. of N. C., 1907	1907	1915
Williams, Leonidas Polk, Edenton; Bellevue Med. Coll., 1918	1919	1920
**Wisely, Martin Robert, Edenton; Univ. of Va., 1935	1937	1938

CLAY—SEE MACON-CLAY

CLEVELAND COUNTY SOCIETY

President: Schenck, Sam Moore, Shelby; Univ. of Pa., 1923	1923	1926
Secretary: Mitchell, Thomas Brice, Shelby; Univ. of Pa., 1924	1925	1927
Anthony, James Edward (Hon.), Kings Mountain; Univ. of Tenn., 1911	1911	1912
Aydlette, Joseph P. (Hon.), Earl; Univ. of Ky., 1901	1903	1903
Bliss, Forrest Edgar, Lawndale; Coll. of Med. Evangelists, 1933	1933	1934
**Bridges, Dwight Thomas, Lattimore; Emory, 1926	1926	1928
Cliff, Benjamin Franklin, Fallston; George Washington Univ., 1908	1909	1941
**Falls, Fred, Lawndale; Tulane, 1930	1930	1933
Gibbs, Emmett Wyattman, Shelby; Univ. of N. C., 1907	1907	1918
Gold, Ben, Shelby; Univ. of Md., 1920	1920	1922
Gold, Thomas Byron, Shelby; N. C. Med. Coll., 1911	1911	1915
**Hamrick, John Carl, Shelby; Univ. of Md., 1935	1935	1940
Hamrick, James Yates, Bolling Springs; Columbia, 1915	1915	1917
Harbison, John William, Shelby; Johns Hopkins, 1919	1919	1924
**Hill, Abel Le Compte, Kings Mountain; Univ. of Pa., 1930	1930	1932
Houser, Emanuel Alvin (Hon.), Shelby; Baltimore Univ., 1902	1902	1904
Kendall, Benjamin Horton, Shelby; Univ. of Md., 1929	1929	1931
Lattimore, Everett Beam (Hon.), Shelby; Bellevue Med. Coll., 1897	1896	1904
Lee, Lawrence Victor (Hon.), Lattimore; Emory, 1894	1897	1904
Mitchell, Zack Perry, Shelby; Med. Coll. of Va., 1920	1920	1921
Moore, D. Forrest, Shelby; Jefferson, 1925	1925	1927
**Moore, Ernest Victor, Earl; Med. Coll. of S. C., 1933	1933	1938
**Padgett, Charles King, Shelby; Jefferson, 1930	1930	1934
**Padgett, Philip Grover, Kings Mountain; Tulane, 1935	1936	1940
**Parker, Shepherd Falkener, Shelby; Med. Coll. of Va., 1929	1929	1931
Ramseur, William Lee, Kings Mountain; Med. Coll. of S. C., 1926	1927	1929
Royster, Stephen Sampson (Hon.), Shelby; Tenn. Med. Coll., 1891	1896	1904
Sherrill, Herbert Rankin, Shelby; Univ. of Tenn., 1926	1926	1927
Thompson, Heyward Chevis, Shelby; Tulane, 1930	1931	1932
**Washburn, Chivous Yulan, Mooresboro; Jefferson, 1937	1937	1939

COLUMBUS COUNTY SOCIETY

President: Whitaker, Richard Bidgood, Whiteville; Univ. Coll. of Med., Richmond, 1912	1912	1913
Secretary: Greene, William Alexander, Whiteville; Northwestern, 1934	1935	1936
Black, John Riley, Jr., Whiteville; Duke, 1938	1942	1943
Cox, Grover Steadman, Tabor City; N. C. Med. Coll., 1911	1911	1914
Elliott, George Douglas, Fair Bluff; Univ. of Pa., 1923	1923	1926
**Floyd, Anderson Gayle, Whiteville; Med. Coll. of S. C., 1937	1937	1939
Floyd, Lawrence Dowe (Hon.), Fair Bluff; N. C. Med. Coll., 1911	1911	1912
Formy-Duval, Thurston, Whiteville; Med. Coll. of Va., 1919	1920	1922
Johnson, Floyd (Hon.), Whiteville; Memphis Hosp. Med Coll., 1903	1903	1904
**Mickley, Jack, Tabor City; Univ. of Md., 1932	1934	1937
**Miller, Warren Edwin, Whiteville; Emory, 1929	1934	1935

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Sadler, Ralph Calvert, Whiteville; N. C. Med. Coll., 1912	1912	1915
**Sinclair, Roby Thomas, Jr., Whiteville; Georgetown Univ., 1938	1938	1940
Smith, Slade Alvah, Whiteville; N. C. Med. Coll., 1907	1907	1921
Smith, William Franklin (Hon.), Chadbourn; N. C. Med. Coll., 1904	1904	1905
Walton, George Britain, Chadbourn; Tulane, 1930	1930	1935
Williams, William Norman, Tabor City; Med. Coll of Va., 1924	1924	1925
Williamson, Rossie Marshall, Tabor City; Univ. of Pa., 1937	1937	1940

CRAVEN COUNTY SOCIETY

President:		
Secretary: Kafer, Oscar Adolph, New Bern; Univ. of Md., 1934	1934	1937
Ashford, Charles Hall, New Bern; Johns Hopkins, 1927	1927	1931
Barker, Christopher Sylvanus, New Bern; Jefferson, 1909	1909	1924
Daniels, Oscar Carroll (Hon.), New Bern; Med. Coll. of Va., 1903	1903	1903
Duffy, Charles, New Bern; Jefferson, 1930	1930	1935
Duffy, Richard Nixon (Hon.), New Bern; Johns Hopkins, 1906	1907	1908
Hollister, William, New Bern; Univ. of Md., 1922	1922	1942
Jones, Robert Du Val (Hon.), New Bern; Univ. of Md., 1896	1897	1897
McGeachy, Robert Sherwood (Hon.), New Bern; Bellevue Hosp. Med. Coll., 1894	1894	1895
Patterson, Joseph Flanner (Hon.), New Bern; Jefferson, 1906	1906	1906
Pollock, Raymond A. (Hon.), New Bern; Jefferson, 1897	1900	1900
Wadsworth, Harvey Bryan, New Bern; Johns Hopkins, 1918	1918	1923
Watson, Samuel Parks, New Bern; Univ. of Md., 1901	1901	1942
Williams, Charles L., Jr., New Bern; Tulane, 1940	1941	1943

CUMBERLAND COUNTY SOCIETY

President: Shaw, John Alexander, Fayetteville; Univ. of Pa., 1923	1923	1926
Secretary: McFayden, Oscar Lee, Sr. (Hon.), Fayetteville; N. C. Med. Coll., 1912	1912	1912
Allgood, Reese Alexander, Fayetteville; Univ. of Md., 1912	1915	1917
**Cannon, Edward Gaine, Hope Mills; Med. Coll. of Va., 1931	1936	1938
**Cogdell, David Melvin, Fayetteville; Med. Coll. of Va., 1938	1938	1940
**Currie, Daniel Smith, Jr., Fayetteville; Jefferson, 1936	1936	1941
**DeCamp, Allen Ledyard, Fayetteville; Univ. of Pa., 1934	1937	1938
**Elfmon, Samuel Leon, Fayetteville; Med. Coll. of Va., 1935	1936	1937
**Farmer, William Anderson, Fayetteville; Vanderbilt, 1930	1937	1941
**Greene, James Verdery, Fayetteville; Univ. of Ga., 1938	1939	1940
Harry, John McKamie, Fayetteville; Med. Coll. of Va., 1934	1934	1936
Highsmith, Jacob Frank, Jr., Fayetteville; Univ. of Pa., 1927	1927	1929
Highsmith, William Cochran, Fayetteville; Univ. of Cincinnati, 1931	1930	1932
**Lackay, R. Howard, Fayetteville; Jefferson, 1938	——	1940
Lilly, James Marshall (Hon.), Fayetteville; Univ. Coll. of Med., Richmond, 1903	1903	1904
**McFadyen, Oscar Lee, Jr., Fayetteville; Duke, 1940	1941	1942
McKay, William Peter, Fayetteville; Tulane, 1916	1916	1921
**Owen, Duncan Shaw, Fayetteville; Univ. of Md., 1930	1930	1933
Parker, Wade Thomas, Fayetteville; Med. Coll. of S. C., 1928	1931	1933
Pittman, Raymond Lupton (Hon.), Fayetteville; Jefferson, 1910	1910	1912
**Pittman, William Austin, Fayetteville; Temple, 1932	1932	1934
Rainey, William Thomas, Fayetteville; Univ. Coll. of Med., Richmond, 1913	1913	1916
Reeves, James Leroy, Hope Mills; Temple, 1938	1938	1942
**Robertson, John Newton, Fayetteville; Med. Coll. of Va., 1923	1923	1924
Verdery, William Carey, Fayetteville; Univ. of Ga., 1915	1920	1921

CURRITUCK—SEE PASQUOTANK-CAMDEN-CURRITUCK-DARE

DARE—SEE PASQUOTANK-CAMDEN-CURRITUCK-DARE

DAVIDSON COUNTY SOCIETY

President: Smith, William Gordon, Thomasville; Tulane, 1927	1927	1928
Secretary: Terry, Jarvis Russell (Hon.), Lexington; Univ. of Louisville, 1911	1912	1912
Alexander, George Thomas, Thomasville; Emory, 1922	1933	1934
Andrew, John Montgomery, Lexington; N. Y. Univ., 1932	1932	1934
Block, Milton Edward, Lexington; Tulane, 1933	1933	1937
Cathell, James Luther, Lexington; Emory, 1937	1937	1939
Clyatt, Claude Eugene, Denton; Univ. of Ga., 1911	1923	1924
**Craven, Erle Bulla, Jr., Lexington; Johns Hopkins, 1929	1932	1935
Craven, Jean Davidson, Lexington; Johns Hopkins, 1930	1933	1935
**Farrington, Joseph Allison Jackson, Thomasville; Univ. of Cincinnati, 1939	1939	1941
Farrington, Reno Kirby, Thomasville; Univ. of Cincinnati, 1925	1925	1927
Gambrell, Grover Cleveland, Lexington; Univ. of Ga., 1912	1923	1924
**Griffis, John William, Denton; Med. Coll. of Va., 1932	1934	1937
Hunt, William Bryce, Lexington; Univ. of Md., 1923	1923	1924

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Jennings, Royal Garfield, Thomasville; N. C. Med. Coll., 1913	1913	1920
**Lancaster, Forrest Jackson, Lexington; Jefferson, 1922	1922	1924
**Lanier, Verne Clifton, Welcome; Med. Coll. of Va., 1937	1937	1939
Leonard, Jacob Calvin, Jr., Lexington; Jefferson, 1928	1928	1931
**Lohr, Dermot, Lexington; Jefferson, 1934	1934	1938
**McDonald, Robert Lacy, Thomasville; Northwestern, 1936	1937	1938
Mock, Frank Lowe (Hon.), Lexington; N. C. Med. Coll., 1908	1908	1908
**Myers, Holland Thomas, Lexington; Med. Coll. of Va., 1935	1935	1940
Phillips, Charles Hoover (Hon.), Thomasville; Baltimore Univ. Sch. of Med., 1892	1893	1911
**Redwine, James Daniel, Lexington; Emory, 1931	1931	1934
Sharpe, Charles Ray, Lexington; Jefferson, 1914	1914	1917
Sherrill, Phil Minnis, Thomasville; Vanderbilt, 1931	1935	1937
Smith, J. Alexander, Lexington; N. C. Med. Coll., 1915	1915	1917
Vestal, Willis Jasper (Hon.), Lexington; Coll. of P. & S., Baltimore, 1883	1889	1893
Zimmerman, Robert U. (Hon.), Welcome; N. C. Med. Coll., 1901	1901	1904

DAVIE—SEE ROWAN-DAVIE

DUPLIN COUNTY SOCIETY

Ewers, Edwin Patterson, Warsaw; Med. Coll. of Va., 1935	1936	1939
Farrior, James William, Warsaw; Univ. of Pa., 1912	1913	1917
Hawes, Charles Forest, Rose Hill; Northwestern, 1933	1932	1939
Hundley, Deane, Jr., Wallace; Boston Med. Coll., 1934	1936	1938
Quinn, Robert Franklin, Magnolia; N. C. Med. Coll., 1912	1913	1916
**Straughan, John William, Warsaw; Med. Coll. of Va., 1924	1924	1925
Williams, James Marcus, Warsaw; Univ. of Md., 1902	1902	1902

DURHAM-ORANGE COUNTIES SOCIETY

President: Hedgpeth, Edward McGowan, Chapel Hill; Univ. of Pa., 1931	1931	1934
Secretary: Ferguson, George Burton, Durham; Jefferson, 1932	1937	1938
Alyea, Edwin Pascal, Durham; Johns Hopkins, 1923	1930	1930
Anderson, Richmond Karl, Chapel Hill; Northwestern, 1939	1942	1943
Anderson, William Banks, Durham; Johns Hopkins, 1924	1927	1928
Arena, Jay Morris, Durham; Duke, 1932	1938	1939
**Arnold, Ralph Aranovitz, Durham; Univ. of Buffalo, 1936	1941	1941
Baker, Lenox Dial, Durham; Duke, 1933	1937	1937
Baker, Roger Denio, Durham; Harvard, 1928	1934	1937
Baylin, George Jay, Durham; Duke, 1937	1941	1942
Berryhill, Walter Reece, Chapel Hill; Harvard, 1927	1928	1934
Bitting, Numa Duncan (Hon.), Durham; Jefferson, 1907	1907	1909
Boone, William Henry (Hon.), Durham; N. C. Med. Coll., 1902	1902	1904
Boone, William Waldo, Durham; Jefferson, 1923	1923	1925
Bowles, Francis Norman, Durham; Med. Coll. of Va., 1924	1924	1926
Bowling, Edwin Holt (Hon.), Durham; Coll. of P. & S., Baltimore, 1891	1890	1908
Brinkley, Harvey Meares, Durham; Jefferson, 1919	1919	1923
**Brown, Clark Edward, Chapel Hill; Univ. of Pa., 1930	1940	1941
Bullitt, James Bell, Chapel Hill; Univ. of Va., 1897	1914	1915
Callaway, Jasper Lamar, Durham; Duke, 1932	1937	1937
Carroll, Ruybetta Charman, Durham; Univ. of Colorado, 1939	1941	1941
Carter, Francis Bayard, Durham; Johns Hopkins, 1925	1925	1931
**Cekada, Emil Bogomir, Durham; Johns Hopkins, 1929	1934	1934
Cooper, Albert Derwin, Durham; George Washington Univ., 1931	1933	1934
Coppridge, William Maurice, Durham; Jefferson, 1918	1919	1920
**Craig, Robert Lawrence, Durham; Johns Hopkins, 1935	1939	1940
**Crispell, Raymond S., Durham; Cornell, 1920	1933	1934
Darden, Oscar Bruton, Richmond, Va.; Med. Coll. of Va., 1918	1920	1920
Davison, Wilburt Cornell, Durham; Johns Hopkins, 1917	1927	1928
Dees, John Essary, Durham; Univ. of Va., 1933	1940	1940
Dees, Susan Coons, Durham; Johns Hopkins; 1935	1939	1941
Dick, MacDonald, Durham; Johns Hopkins, 1928	1940	1941
Donnelly, Grant Lester, Chapel Hill; Duke, 1933	1933	1935
Eagle, Watt Weems, Durham; Johns Hopkins, 1925	1929	1930
Easley, Eleanor Beamer, Durham; Duke, 1934	1940	1940
**Erickson, Cyrus Conrad, Durham; Univ. of Minn., 1932	1940	1941
Fassett, Burton Watson (Hon.), Durham; Baltimore Med. Coll., 1898	1899	1909
Fields, Leonard Earl, Chapel Hill; Univ. of Pa., 1929	1929	1931
Finkelstein, Harold, Durham; Johns Hopkins, 1928	1937	1938
**Fleming, Ralph Gibson, Durham; Univ. of Pa., 1936	1936	1938
Fleming, William LeRoy, Chapel Hill; Vanderbilt, 1932	1940	1940
Forbus, Wiley Davis, Durham; Johns Hopkins, 1923	1929	1935
**Forrest, Daniel Efland, Hillsboro; Univ. of Md., 1930	1930	1933

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Fox, Frances Hill, Durham; Univ. of Pa., 1935	1940	1942
Fox, Herbert Junius, Durham; Duke, 1935	1940	1941
**Gardner, Clarence Ellsworth, Jr., Durham; Johns Hopkins, 1928	1932	1932
Goudge, Mabel Ensworth, Durham; Ohio State Univ., 1922	1925	1927
Graham, William Alexander, Durham; Univ of Pa., 1932	1932	1937
Graves, Robert Williams, Durham; Duke, 1933	1937	1938
Greenhill, Maurice Herzberger, Durham; Univ. of Chicago, 1936	1940	1941
Grimson, Keith Sanford, Durham; Rush Med. Coll., 1933	1942	1942
Hamblen, Edwin Crowell, Durham; Univ. of Va., 1928	1931	1931
Hanes, Frederic Moir, Durham; Johns Hopkins, 1908	1916	1917
Hansen-Pruss, Oscar Carl Edward, Durham; Johns Hopkins, 1924	1930	1931
Hardee, Walter Person, Durham; Jefferson, 1912	1912	1924
**Harris, Isaac E., Jr., Durham; Jefferson, 1933	1933	1939
Hart, Julian Deryl, Durham; Johns Hopkins, 1921	1929	1930
Harton, Roman Albert, Durham; Temple, 1934	1935	1936
Hemphill, James Eugene, Durham; Univ. of Va., 1937	1942	1942
Hendrix, James Paisley, Durham; Univ. of Pa., 1930	1930	1939
Hicks, Calvin S. (Hon.), Durham; Univ. of Md., 1904	1904	1904
Holloway, Joseph Clark, Durham; Tulane, 1927	1928	1929
Holloway, Robert Lee (Hon.), Durham; Med. Coll. of Va., 1893	1893	1901
Holman, Russell Lowell, Chapel Hill; Vanderbilt, 1931	1938	1939
**Hooker, John Samuel, Chapel Hill; Emory, 1923	1923	1924
**Horack, Harold Maclachlan, Durham; Duke, 1937	1939	1940
Johnston, Christopher, Durham; Johns Hopkins, 1926	1930	1930
**Jones, Thomas Thweatt, Durham; Johns Hopkins, 1932	1934	1935
Kerns, Thomas Cleveland (Hon.), Durham; Univ. of Pa., 1911	1911	1913
London, Arthur Hill, Durham; Univ. of Pa., 1927	1927	1930
Lyman, Richard Sherman, Durham; Johns Hopkins, 1921	1940	1941
MacNider, William de Berniere (Hon.), Chapel Hill; Univ. of N. C., 1903	1903	1903
**Makepeace, Alexander Watts, Chapel Hill; Harvard, 1928	1941	1941
Manning, Isaac Hall, Sr. (Hon.), Chapel Hill; Long Island Coll of Med., 1897	1899	1901
**Manning, Isaac Hall, Jr., Durham; Harvard, 1935	1938	1939
**Markham, Blackwell, Durham; Harvard, 1922	1922	1925
Martin, Donald Stover, Durham; Univ. of Rochester, 1930	1938	1939
McBryde, Angus Murdoch, Durham; Univ. of Pa., 1928	1931	1932
**McCracken, Joseph Pickett, Durham; Duke, 1937	1938	1941
**McCutcheon, William Benson, Durham; Med. Coll. of Va., 1921	1921	1925
McDowell, Roy Hendrix, Durham; Univ. of Md., 1929	1930	1931
**McKee, Lewis Middleton, Durham; Temple, 1933	1934	1934
McPherson, Samuel Dace (Hon.), Durham; Univ. of Md., 1903	1903	1904
Menefee, Elijah Eugene, Jr., Durham; Duke, 1936	1940	1941
Milam, Daniel Franklin, Chapel Hill; Univ. of Chicago, 1923	1939	1940
Morgan William Gardner, Chapel Hill; Univ. of Pa., 1931	1931	1937
Nichols, Rhodes Edmond, Sr. (Hon.), Durham; Med. Coll. of Va., 1890	1890	1904
Nichols, Rhodes Edmond, Jr., Durham; Univ. of Pa., 1930	1930	1932
Nicholson, William McNeal, Durham; Johns Hopkins, 1931	1935	1937
Noojin, Ray Oscar, Jr., Durham; Univ. of Chicago, 1937	1942	1942
**Norton, John William Roy, Chapel Hill; Vanderbilt, 1928	1928	1932
Orgain, Edward Stewart, Durham; Univ. of Va., 1930	1934	1936
**Patterson, Fred Geer, Chapel Hill; Univ. of Pa., 1937	1937	1940
**Pearse, Richard Lehmer, Durham; Harvard, 1931	1938	1938
Perry, David Russell, Durham; Jefferson, 1919	1919	1922
**Persons, Elbert Lapsley, Durham; Harvard, 1927	1931	1931
**Plummer, David Edwin, Durham; Med. Coll. of Va., 1934	1934	1938
Powell, Albert Henry, Durham; Univ. of Ga., 1924	1925	1926
Raney, Richard Beverly, Durham; Harvard, 1930	1934	1935
Reeves, Robert James, Durham; Baylor Univ., 1924	1930	1930
**Reque, Paul Gerhard, Durham; Duke, 1933	1940	1941
Richardson, William Perry, Chapel Hill; Med. Coll. of Va., 1928	1928	1929
Riggsbee, Arthur Eugene (Hon.), Durham; Univ. of N. C., 1909	1909	1911
**Roberson, Foy (Hon.), Durham; Jefferson, 1909	1909	1912
Roberts, Bennett Watson, Durham; Univ. of Md., 1924	1924	1927
Roberts, Bryan Nazer, Hillsboro; Univ. of Md., 1925	1925	1926
**Roberts, Louis Carroll, Durham; Duke, 1933	1935	1940
**Robertson, Edwin Mason, Durham; Tulane, 1912	1912	1929
Rosenau, Milton Joseph (Hon.), Chapel Hill; Univ. of Pa., 1889	1937	1937
**Ross, Robert Alexander, Durham; Univ. of Pa., 1922	1922	1926
**Rude, Joe C., Durham; Univ. of Okla., 1930	1941	1941
Ruffin, Julian Meade, Durham; Univ. of Va., 1926	1930	1931
Schiebel, Herman Max, Durham; Johns Hopkins, 1933	1938	1940
**Schulze, William, Durham; Duke, 1936	1940	1941
Shuler, James Edward, Durham; Med. Coll. of Va., 1914	1920	1922
Smith, Annie Thompson, Durham; Univ. of Illinois, 1923	1925	1926

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Smith, David Tillerson, Durham; Johns Hopkins, 1922	1931	1931
Smith, Ruby A., Chapel Hill; Univ. of Md., 1940	1942	1943
Speed, Joseph Anderson, Durham; Jefferson, 1914	1914	1916
Spikes, Norman Owen, Durham; Jefferson, 1924	1924	1927
Sprunt, Douglas Hamilton, Durham; Yale, 1927	1934	1935
Stanford, Lois Foote, Durham; Univ. of Pa., 1921	1923	1924
Stanford, William Raney, Durham; Univ. of Pa., 1919	1919	1923
**Stone, Robert Edward, Chapel Hill; Harvard, 1934	1937	1940
Sweaney, Hunter McGuire, Durham; Univ. of Pa., 1919	1919	1920
**Thomas, Walter Lee, Durham; Univ. of Va., 1931	1937	1938
**Thornhill, Edwin Hale, Durham; Duke, 1938	1941	1942
Trent, Josiah Charles, Durham; Univ. of Pa., 1938	1940	1941
Tyler, Earl Runyon, Durham; Jefferson, 1923	1923	1927
Vaughan, Walter Weddle, Durham; Jefferson, 1933	1933	1938
Watkins, George Thomas, Durham; Jefferson, 1915	1915	1917
Watkins, William Merritt, Durham; Jefferson, 1923	1923	1925
Wilkins, Robert Bruce, Durham; N. C. Med. Coll., 1913	1913	1917
**Woodhall, Maurice Barnes, Durham; Johns Hopkins, 1930	1937	1937
Wright, John Joseph, Chapel Hill; Vanderbilt, 1935	1940	1942

EDGECOMBE-NASH COUNTIES SOCIETY

President: Speight, James Ambler, Rocky Mount; Univ. of La., 1914	1915	1916
Secretary: Stone, Marvin Lee,, Rocky Mount; Univ. of Pa., 1924	1928	1928
Anderson, Richard Speight, Rocky Mount; Univ. of Md., 1924	1924	1932
Bailey, Clarence Whitfield, Rocky Mount; Jefferson, 1925	1925	1930
Bass, Spencer Pippin (Hon.), Tarboro; Univ. of Va., 1906	1907	1909
Battle, Margaret White, Rocky Mount; Univ. of Mich., 1933	1936	1937
Battle, Newsom Pittman, Rocky Mount; Univ. of Pa., 1926	1930	1931
Boice, Edmund Simpson, Rocky Mount; Univ. of Pa., 1909	1914	1915
Brantley, Hassell (Hon.), Spring Hope; Jefferson, 1888	1888	1901
Brantley, Julian Chisholm, Spring Hope; Jefferson, 1916	1916	1922
Bunn, James Pettigrew, Rocky Mount; Univ. of Md., 1935	1935	1938
Coppedge, Thomas O., Nashville; Coll. of P. & S., Baltimore, 1908	1909	1917
Crumpler, James Fulton, Rocky Mount; N. Y. Univ., 1930	1930	1935
Cutchin, Joseph Henry, Whitakers; Univ. Coll. of Med., Richmond, 1911	1911	1915
Daughtridge, Arthur Lee, Rocky Mount; Univ. of Md., 1924	1924	1924
Deans, Arthur Wood, Battleboro; Med. Coll. of Va., 1915	1915	1917
DeLoatch, Mahlon Wingate, Tarboro; Med. Coll. of Va., 1928	1928	1930
Denton, Ausley Leo, Castalia; Med. Coll. of Va., 1918	1921	1923
Dixon, William Harvey, Rocky Mount; Jefferson, 1919	1919	1922
**Edmondson, Frank, Jr., Tarboro; Temple, 1937	1937	1939
Fleming, Major Ivy, Rocky Mount; Jefferson, 1904	1906	1919
Gorham, Herbert Jenkins, Nashville; Univ. of Md., 1926	1926	1927
Green, William Wills (Hon.), Tarboro; Univ. of N. C., 1908	1908	1910
Jones, William Samuel, Nashville; Med. Coll. of Va., 1927	1927	1927
Justa, Samuel Harry, Rocky Mount; Med. Coll. of Va., 1933	1934	1934
Knowles, Daniel Lamont, Rocky Mount; Univ. of Pa., 1918	1918	1920
Kornegay, Lemuel W. (Hon.), Rocky Mount; N. C. Med. Coll., 1906	1906	1906
Lane, John Loftin (Hon.), Rocky Mount; N. C. Med. Coll., 1906	1906	1906
Looney, John Joseph Williams, Rocky Mount; Univ. of Va., 1909	1919	1919
Martin, John Henry, Red Oak; Univ. of Nashville, 1903	1904	1916
McDowell, William Kitchin, Tarboro; Jefferson, 1931	1931	1934
Noell, Robert Holman, Rocky Mount; Univ. of Md., 1916	1916	1920
Pearson, Hugh Oliver, Pinetops; Med. Coll. of Va., 1926	1927	1928
Perry, Ernest Monroe, Rocky Mount; Coll. of P. & S., Baltimore, 1907	1907	1919
Raby, James Grover (Hon.), Tarboro; Univ. Coll. of Med., Richmond, 1911	1911	1913
Royster, Thomas Hays, Tarboro; Univ. Coll. of Med., Richmond, 1908	1908	1914
Smith, Claiborne Thweat, Rocky Mount; Univ. of Pa., 1918	1918	1920
**Smith, John Goodrich, Rocky Mount; Duke, 1934	1937	1938
Staley, S. Walter (Hon.), Rocky Mount; Med. Coll. of S. C., 1901	1901	1904
**Sykes, Joy Verle, Rocky Mount; Univ. of Pa., 1929	1929	1930
Thorpe, Adam Tredwell, Rocky Mount; Univ. of Pa., 1921	1921	1923
Vann, Junius Richardson, Spring Hope; Jefferson, 1917	1917	1920
Wall, William Stanley, Rocky Mount; Univ. of Pa., 1933	1933	1936
**Way, Samuel Eason, Rocky Mount; Univ. of Md., 1933	1933	1938
Whitaker, James Allen, Rocky Mount; Temple, 1933	1934	1935
Willis, Byrd Charles, Rocky Mount; Med. Coll. of Va., 1909	1916	1917
Wooten, Amos Monroe, Pinetops; Univ. of N. C., 1910	1910	1911
Wright, John Everett, Macclesfield; Jefferson, 1937	1937	1938

** Denotes Fellows in Service

FORSYTH COUNTY MEDICAL SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President: Kirby, William Leslie, Winston-Salem; Vanderbilt, 1925	1926	1930
Secretary: Adams, Carlton Noble, Winston-Salem; Duke, 1932	1936	1937
Ader, Otis Ladeau, Walkertown; Univ. of Pa., 1925	1925	1927
Andrew, Lacy Allen, Jr., Winston-Salem; Duke, 1932	1932	1936
Avery, Edward Stanley, Winston-Salem; Univ. of Pa., 1928	1928	1930
**Bailey, Robert Liston, Jr., Winston-Salem; Univ. of Va., 1937	1941	1942
Beavers, James Wallace, Kernersville; Univ. of Pa., 1930	1930	1935
Belton, Joseph Franklin, Winston-Salem; Univ. of Pa., 1914	1914	1916
**Benbow, Edgar Vernon, Winston-Salem; Jefferson, 1925	1925	1929
**Benbow, John Thomas, Winston-Salem; N. C. Med. Coll., 1910	1910	1920
Bender, John Robert, Winston-Salem; Med. Coll. of Va., 1935	1935	1939
Bowers, Marvin Arthur, Winston-Salem; Tulane, 1911	1911	1914
**Bradford, George Edwin, Winston-Salem; Univ. of Tenn., 1933	1935	1936
Bradshaw, Howard Holt, Winston-Salem; Jefferson, 1927	1927	1942
**Brooks, Ernest Bruce, Winston-Salem; Duke, 1933	1935	1936
**Bunn, Richard Wilmot, Winston-Salem; Temple, 1935	1936	1937
Butler, Leroy Jefferson, Winston-Salem; Med. Coll. of Va., 1915	1920	1921
Byerly, Frederic Lee, Winston-Salem; Jefferson, 1939	1939	1943
Carlton, Romulus Lee (Hon.), Winston-Salem; Univ. of Md., 1906	1906	1906
Carpenter, Coy Cornelius, Winston-Salem; Syracuse Univ., 1924	1924	1927
Casstevens, John Claude, Clemmons; Med. Coll. of Va., 1926	1926	1927
Combs, Fielding, Winston-Salem; Med. Coll. of Va., 1923	1931	1932
Cooke, Grady Carlyle, Winston-Salem; Univ. of Md., 1919	1919	1920
Couch, Vanderbilt Franklin, Winston-Salem; Columbia, 1911	1911	1919
**Craig, Sylvester Douglas (Hon.), Winston-Salem; Tulane, 1908	1911	1912
Dalton, William Nicholson (Hon.), Winston-Salem; N. C. Med. Coll., 1904	1904	1905
**Davis, John Preston, Winston-Salem; Univ. of Pa., 1934	1937	1938
Davis, Thomas W. (Hon.), Winston-Salem; Med. Coll. of S. C., 1898	1899	1899
Drummond, Charles Stitt, Winston-Salem; Univ. of Ga., 1930	1933	1933
Fearrington, James Cornelius Pass, Winston-Salem; Rush Med. Coll., 1930	1933	1934
Fritz, Oliver Grady, Walkertown; Med. Coll. of Va., 1931	1932	1940
Garvey, Fred Kesler, Winston-Salem; Univ. of Cincinnati, 1925	1925	1932
Garvey, Robert Robey, Winston-Salem; N. C. Med. Coll., 1915	1915	1919
Gilbert, Edward Lee, Winston-Salem; Univ. of Tenn., 1932	1935	1936
**Goswick, Harry Wilson, Jr., Winston-Salem; Univ. of Tenn., 1931	1934	1935
Grimes, William Lawrence, Winston-Salem; Johns Hopkins, 1910	1910	1915
Grollman, Arthur, Winston-Salem; Johns Hopkins, 1930	1930	1942
Harrell, George Thomas, Jr., Winston-Salem; Duke, 1936	1940	1940
Harrill, James Albert, Winston-Salem; Univ. of Pa., 1935	1935	1939
Harrison, Tinsley Randolph, Winston-Salem; Johns Hopkins, 1922	1923	1942
**Hart, Oliver James, Winston-Salem; Med. Coll. of S. C., 1925	1930	1932
Hege, John Roy, Winston-Salem; Univ. of Md., 1916	1916	1917
**Helsabeck, Belmont Augustus, Winston-Salem; Med. Coll. of Va., 1931	1931	1936
Helsabeck, Chester Joseph, Walnut Cove; Univ. of Md., 1919	1919	1922
Helsabeck, Rupert Sylvester, King; N. C. Med. Coll., 1913	1913	1936
Henley, Ruth Dixon, Winston-Salem; Woman's Med. Coll. of Pa., 1935	1937	1938
Herndon, Claude Nash, Jr., Winston-Salem; Jefferson, 1939	1939	1941
Hightower, Felda, Winston-Salem; Univ. of Pa., 1933	1933	1936
Holmes, George Washington, Winston-Salem; Med. Coll. of Va., 1931	1931	1933
Hurdle, Samuel Walker, Winston-Salem; Jefferson, 1914	1914	1915
Izlar, Henry Le Roy, Winston-Salem; Med. Coll. of S. C., 1915	1916	1917
Johnson, Paul William, Winston-Salem; Univ. of Louisville, 1930	1932	1933
Johnson, Wingate Memory (Hon.), Winston-Salem; Jefferson, 1908	1908	1910
Jones, Beverly Nicholas, Winston-Salem; Med. Coll. of Va., 1915	1915	1921
Kapp, Constantine Hege, Winston-Salem; McGill Univ., 1938	1938	1940
Keiger, Oscar R., Winston-Salem; Univ. Coll. of Med., Richmond, 1911	1911	1915
**Kennedy, Leon Toland, Winston-Salem; Jefferson, 1935	1937	1939
Kerr, James Edwin (Hon.), Winston-Salem; Univ. of Md., 1897	1898	1898
King, Edward Sandling, Winston-Salem; Jefferson, 1927	1927	1930
Lassiter, Vernon Clark, Winston-Salem; Emory, 1925	1928	1929
Lawson, Robert Barrett, Winston-Salem; Harvard, 1936	1940	1941
Linville, Aaron Yancy (Hon.), Winston-Salem; Univ. of N. Y., 1889	1889	1896
Lock, Frank Ray, Winston-Salem; Tulane, 1935	1935	1941
Long, Vann McKee (Hon.), Winston-Salem; N. C. Med. Coll., 1906	1906	1908
MacMillan, Elbert Alexander, Winston-Salem; Univ. of Pa., 1933	1933	1937
**Marshall, James Flournoy, Winston-Salem; Univ. of Pa., 1931	1931	1935
**Martin, Benjamin Franklin, Winston-Salem; Jefferson, 1936	1936	1940
**Martin, Lester Poindexter, Mocksville; Jefferson, 1920	1920	1921
**Mauzy, Charles Hampton, Jr., Winston-Salem; Univ. of Va., 1933	1938	1939
**May, William Pickford, Winston-Salem; George Washington Univ., 1935	1937	1938
McCants, Clyde Hare, Winston-Salem; Med. Coll. of S. C., 1925	1929	1931

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
**McDowell, Harold Clyde, Winston-Salem; Jefferson, 1931	1931	1936
McMillan, Robert Lindsay, Winston-Salem; Duke, 1933	1936	1938
Menzies, Henry Harding, Winston-Salem; Med. Coll. of Va., 1923	1923	1926
Moore, Robert Alexander, Winston-Salem; N. C. Med. Coll., 1911	1911	1917
Munt, Herbert Frederick, Winston-Salem; Med. Coll. of Va., 1911	1914	1915
**Norfleet, Charles Millner, Jr., Winston-Salem; Univ. of Pa., 1937	1937	1941
**Odom, Robert Taft, Winston-Salem; Univ. of Tenn., 1934	1941	1942
**Ogburn, Lundie Calvin, Winston-Salem; Jefferson, 1928	1928	1936
O'Neill, James Francis, Winston-Salem; Jefferson, 1936	1941	1942
Paddison, John Robert (Hon.), Kernersville; Univ. of Md., 1902	1902	1904
Pegg, Fred Grant, Winston-Salem; Med. Coll. of Va., 1934	1934	1936
Pepper, John Kerr (Hon.), Winston-Salem; Coll. of P. & S., Baltimore, 1907	1908	1908
Pfohl, Samuel Frederick (Hon.), Winston-Salem; Univ. of Pa., 1894	1898	1898
Pierce, Amor Francis, Winston-Salem; Univ. of Pittsburgh, 1941	1942	1943
Pool, Bennette Baucom, Winston-Salem; Jefferson, 1923	1923	1925
Pool, Charles Glenn, Winston-Salem; Tulane, 1924	1924	1927
Pulliam, Benjamin Eloth, Winston-Salem; Jefferson, 1928	1928	1931
Rankin, Samuel Wharton, Winston-Salem; Jefferson, 1912	1912	1914
**Rose, John Andrew, Winston-Salem; Univ. of Texas, 1933	1935	1942
Rousseau, James Parks, Winston-Salem; Univ. of Md., 1918	1920	1920
Schallert, Paul Otto (Hon.), Winston-Salem; Univ. of Illinois, 1904	1911	1912
Simmons, Raymond Robinson, Winston-Salem; Med. Coll. of Va., 1917	1923	1924
Sink, Vergil Rex, Winston-Salem; Univ. of Pa., 1928	1930	1935
Slate, John Samuel (Hon.), Winston-Salem; Univ. Coll. of Med., Richmond, 1900	1899	1904
Spainhour, Ellis H. (Hon.), Winston-Salem; Baltimore Med. Coll., 1898	1898	1898
Speas, Dallas C., Winston-Salem; Univ. of Md., 1911	1913	1924
Speas, William Paul (Hon.), Winston-Salem; Univ. Coll. of Med., Richmond, 1911	1911	1912
Spicer, Richard Williams, Winston-Salem; N. C. Med. Coll., 1910	1910	1916
Sprunt, William Hutchinson, Jr., Winston-Salem; Univ. of Pa., 1918	1918	1925
Starling, Howard Montfort, Winston-Salem; Med. Coll. of Va., 1931	1931	1937
Stephenson, Anne Lorth, Winston-Salem; Woman's Med. Coll. of Pa., 1937	1939	1940
Stone, Grady Erasmus, King; Med. Coll. of Va., 1915	1915	1936
Street, Claudius Augustus, Winston-Salem; Harvard, 1918	1918	1925
Strickland, Edward F. (Hon.), Winston-Salem; Univ. of New York, 1887	1887	1893
Taylor, Vernon Williams, Jr., Winston-Salem; Jefferson, 1938	1938	1941
Thomas, Wilbur Clyde, Winston-Salem; Univ. of Md., 1939	1941	1942
Thompson, Edgar Stinceon, Winston-Salem; Univ. of New York, 1919	1919	1921
Tuttle, Reuben Gray (Hon.), Winston-Salem; N. C. Med. Coll., 1909	1909	1913
Valk, Arthur de Talma, Winston-Salem; Johns Hopkins, 1910	1913	1914
Vann, Herbert Moffett, Winston-Salem; Jefferson, 1917	1920	1923
Wall, Roscoe LeGrand, Winston-Salem; Jefferson, 1912	1912	1915
**Webster, Nelson Mortimer, Winston-Salem; Duke, 1937	1939	1942
Whitaker, Richard Harper, Kernersville; Univ. of Pa., 1934	1934	1939
Whittington, James Benbow (Hon.), Winston-Salem; N. C. Med. Coll., 1911	1911	1911
Williams, John Ralston, Jr., Winston-Salem; Univ. of Rochester, 1935	1941	1942
Wilson, Russell Fletcher, Winston-Salem; Southern Coll. of Med. and Surgery, 1914	1943	1943
**Wolfe, Ralph Verlon, Winston-Salem; Univ. of Ind., 1937	1940	1941
Wright, Orpheus Evans, Winston-Salem; Emory, 1924	1924	1928
Wyatt, Wortham, Winston-Salem; Univ. of Pa., 1913	1913	1916
Wylie, William DeKalb, Winston-Salem; Univ. of Va., 1924	1926	1928
Yoder, Paul Allison, Winston-Salem; Univ. of Pa., 1923	1923	1925

FRANKLIN COUNTY SOCIETY

Burt, Samuel Perry (Hon.), Louisburg; Coll. of P. & S., Baltimore, 1896	1896	1904
Perry, Herbert G., Louisburg; Coll. of P. & S., Baltimore, 1915	1915	1916
Perry, William Clifton, Louisburg; Emory, 1934	1934	1936
Wheless, James Block, Louisburg; Univ. of Md., 1935	1935	1938
Yarborough, Richard Fenner (Hon.), Louisburg; George Washington Univ., 1898	1899	1899

GASTON COUNTY SOCIETY

President: Bain, Eugene Anthony, Gastonia; Univ. of Va., 1927	1938	1942
Secretary: Pugh, Charles Harrison (Hon.), Gastonia; N. C. Med. Coll., 1910	1910	1910
Albright, Samuel Lee, Belmont; Georgetown Univ., 1934	1934	1937
Allen, Mitchell Hurst, Cramerton; Emory, 1929	1930	1931
Anders, McTyeire Gallant (Hon.), Gastonia; Maryland Med. Coll., 1901	1902	1902
Anthony, William Augustus, Gastonia; Med. Coll. of Va., 1929	1929	1932
Belk, George W., Gastonia; Atlanta Sch. of Med., 1913	1918	1924
Blair, James Luther, Gastonia; Atlanta Med. Coll., 1915	1920	1921
Blair, J. Samuel, Gastonia; Med. Coll. of S. C., 1937	1938	1940
Chandler, Leon David, Gastonia; Med. Coll. of S. C., 1938	1940	1941

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Clinton, Roland Smith, Gastonia; Univ. of Md., 1914	1914	1920
Cranford, James Frank, Gastonia; Univ. of N. C., 1909	1934	1935
Glenn, Charles Arthur, Gastonia; Med. Coll. of S. C., 1936	1936	1937
Glenn, Henry Franklin, Gastonia; Emory, 1932	1932	1934
Glenn, Lucius Newton (Hon.), Gastonia; Univ. of Md., 1897	1897	1904
Grigg, John Richard, Gastonia; Univ. of Louisville, 1927	1928	1937
Groves, Robert Burwell, Lowell; Med. Coll. of Va., 1924	1924	1925
Herrin, Hermon Keith, Gastonia; Med. Coll. of Va., 1935	1935	1937
Houser, Forrest Melville, Cherryville; Univ. of Pa., 1928	1929	1930
Jones, William McConnell, Gastonia; Med. Coll. of S. C., 1922	1927	1928
Lyday, Charles Emmett, Gastonia; Atlanta Sch. of Med., 1910	1910	1920
McAdams, Charles Rupert, Belmont; N. C. Med. Coll., 1912	1912	1916
McChesney, William Wallace, Gastonia; Med. Coll. of Va., 1915	1926	1927
McConnell, Harvey Russell, Gastonia; Univ. of Md., 1924	1927	1930
Miller, Robert Carlysle, Gastonia; N. C. Med. Coll., 1909	1918	1919
Mitchell, Robert Hartwell, Gastonia; Med. Coll. of Va., 1936	1936	1938
Moore, Burmah Dixon, Mt. Holly; Med. Coll., of Va., 1915	1915	1921
Norman, J. Standing, Gastonia; Coll. of P. & S., Baltimore, 1909	1911	1920
Norman-Glenn, Dorothy F., Gastonia; Woman's Med. Coll. of Pa., 1938	1938	1940
Parks, Walter Beatty, Gastonia; Univ. of Md., 1924	1924	1927
Patrick, George Riddle, Jr., Bessemer City; Univ. of Md., 1916	1916	1920
**Powell, Herman Sutton, Gastonia; Univ. of Va., 1932	1932	1937
Pressly, John Mason, Belmont; N. C. Med. Coll., 1915	1915	1920
Quickel, John Cephas, Gastonia; Univ. of Pa., 1932	1932	1936
Ramsaur, Jackson Townsend, Cherryville; Univ. of Chicago, 1933	1934	1935
Reid, James William (Hon.), Lowell; Jefferson, 1908	1908	1909
Rhyne, Robert Edgar (Hon.), Gastonia; N. C. Med. Coll., 1907	1907	1908
Roberts, William McKinley, Gastonia; Tufts Med. Coll., 1925	1928	1929
Robinson, James Lee, Gastonia; Univ. of Pa., 1932	1932	1936
**Stroupe, Albertus Ula, Jr., Mount Holly; Med. Coll. of Va., 1931	1932	1938
Taylor, Benjamin Cicero, Mount Holly; N. C. Med. Coll., 1910	1911	1923
Utley, Henry Gibbons, Gastonia; Univ. of Md., 1894	1894	1941
Weathers, Bailey Graham, Stanley; Med. Coll. of Va., 1929	1929	1941
Wilkins, Samuel A., Sr. (Hon.), Dallas; Univ. of Ky., 1902	1903	1903

GATES COUNTY SOCIETY

Blanchard, Thomas W., Hobbsville; Med. Coll. of Va., 1911	1911	1919
Carter, Thomas Leslie, Gatesville; Med. Coll. of Va., 1917	1917	1928
Payne, John Abb, III, Sunbury; Med. Coll. of Va., 1933	1935	1942

GRAHAM COUNTY SOCIETY

GRANVILLE COUNTY SOCIETY

President: Bradsher, James Sidney, Stovall; Univ. of Va., 1925	1925	1928
Secretary: Norwood, Ballard, Jr., Oxford; Med. Coll. of Va., 1937	1937	1940
**Carrington, Samuel Macon, Oxford; Rush Med. Coll., 1931	1931	1934
Clay, Earl Lewis, Oxford; Univ. of Ky., 1929	1929	1933
Daniel, Nathaniel Chesley (Hon.), Oxford; N. C. Med. Coll., 1895	1895	1903
**Elliott, Julian Carr, Oxford; Univ. of Md., 1926	1926	1929
Hays, Benjamin Kinsey (Hon.), Oxford; Univ. Coll. of Med., Richmond, 1894	1894	1897
Morris, Joseph A. (Hon.), Franklinton; Vanderbilt, 1890	1893	1899
Noblin, Roy Lee, Oxford; Med. Coll. of Va., 1924	1924	1925
**Taylor, Rives Williams, Oxford; Tulane, 1926	1926	1928
Taylor, William Louis (Hon.), Oxford; Univ. of Va., 1900	1901	1901
Thomas, William Nelson, Oxford; Med. Coll. of Va., 1911	1911	1914
Thompson, Joseph W., Creedmoor; Ky. Univ., 1904	1907	1917
**Winston, Patrick Henry, Clarksville, Va.; Med. Coll. of Va., 1929	1929	1930

GREENE COUNTY SOCIETY

President: Marlowe, William Anderson, Walstonburg; Jefferson, 1919	1919	1921
Secretary: Ellinwood, Everett Hews, Snow Hill; Temple, 1935	1935	1937
Carroll, Fountain Williams, Hookerton; Med. Coll. of Va., 1925	1926	1927
Dawson, William Earl, Hookerton; Jefferson, 1920	1920	1922
Harper, James Henry (Hon.), Snow Hill; Jefferson, 1905	1906	1906
Walker, Robert Jeffreys, Jr., Snow Hill; Med. Coll. of Va., 1932	1934	1935

GUILFORD COUNTY SOCIETY

President: Bonner, Octavius Blanchard, High Point; Univ. of Md., 1917	1920	1922
Secretary: Lackey, Marvin Alphonso, High Point; N. C. Med. Coll., 1917	1923	1924
Treasurer: Leath, MacLean Bacon, High Point; Jefferson, 1933	1933	1937

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
**Apple, Elbert Dwight, Greensboro; Washington Univ., 1929	1929	1936
Banner, Charles Whitlock (Hon.), Greensboro; Univ. of Md., 1899	1899	1901
**Benton, Wayne Jefferson, Greensboro; Syracuse Univ., 1934	1934	1936
Bonner, Merle Dumont, Jamestown; Univ. of Md., 1930	1930	1934
Brockmann, Harry Lyndon, High Point; Univ. of Pa., 1917	1917	1921
Buie, Roderick Mark, Greensboro; Jefferson, 1914	1914	1917
**Burwell, John Cole, Jr., Greensboro; Duke, 1933	1936	1937
Cardwell, D. Willard, Greensboro; Med. Coll. of Va., 1932	1936	1937
Cater, Clinton Duncan, Greensboro; Emory, 1920	1923	1924
Clary, William Thomas, Greensboro; Univ. of Pa., 1928	1928	1934
Cole, Walter Francis (Hon.), Greensboro; Johns Hopkins, 1909	1909	1910
Collings, Ruth Mary, Greensboro; Univ. of Pa., 1923	1926	1927
Cook, Henry Lilly, Greensboro; Jefferson, 1918	1918	1920
Cook, Joseph Lindsay, Greensboro; Univ. of Pa., 1925	1925	1928
**Corwin, Warren Coons, Greensboro; Johns Hopkins, 1932	1932	1941
Cozart, Samuel Rogers, Greensboro; Med. Coll. of Va., 1923	1923	1925
**Creech, Lemuel Underwood, High Point; Tulane, 1939	1939	1940
Dalton, Bennie Booker, Liberty; Duke, 1932	1933	1935
**Davis, Philip Bibb, High Point; Jefferson, 1926	1926	1929
**Dawson, Alonzo Ray, Greensboro; Med. Coll. of Va., 1929	1940	1941
Dees, Ralph Erastus (Hon.), Greensboro; Univ. of Md., 1906	1908	1909
Dees, Rigdon Osmund (Hon.), Greensboro; Univ. of Md., 1906	1907	1907
Dunn, Richard Berry, Greensboro; McGill Univ., 1933	1936	1937
Durham, Carey Winston, Greensboro; George Washington Univ., 1927	1927	1930
Dyer, John Wesley, High Point; Univ. of Louisville, 1916	1921	1921
Edwards, Vertie Edward, Stokesdale; Univ. of Md., 1913	1913	1913
**Farmer, William Dempsey, Greensboro; Duke, 1934	1939	1939
Flagge Philip Wesley (Hon.), High Point; Washington Univ., 1902	1905	1906
**Flythe, William Henry, High Point; Vanderbilt, 1933	1933	1937
Fortune, Alexander Fletcher (Hon.), Greensboro; Univ. Coll. of Med., Richmond, 1900	1900	1904
**Fox, Dennis B., Greensboro; Vanderbilt, 1937	1937	1942
**Fox, Norman Albright, Greensboro; Univ. of Pa., 1924	1924	1926
**Garrard, Robert Lemley, Greensboro; Harvard, 1932	1940	1941
Geddie, Kenneth Baxter, High Point; Jefferson, 1921	1921	1923
Gilmore, Clyde Manly, Greensboro; Med. Coll. of Va., 1925	1925	1926
Glascock, Joy Harris (Hon.), Greensboro; Woman's Med. Coll. of Baltimore, 1896	1896	1900
Gove, Anna M. (Hon.), Greensboro; Woman's Med. Coll. of New York, 1892	1894	1896
Grayson, Charles Shober (Hon.), High Point; George Washington Univ., 1906	1907	1908
Groome, James Gordon, High Point; Univ. of Cincinnati, 1924	1924	1925
Harden, Robert Norman, Greensboro; Univ. of Pa., 1922	1922	1924
Harder, Frank Kirby, Greensboro; Univ. of Cincinnati, 1924	1924	1925
**Harney, James Norman, High Point; Univ. of Pa., 1921	1921	1937
**Harrill, Henry Clay, Greensboro; Johns Hopkins, 1933	1933	1940
Harrison, Edmund (Hon.), Greensboro; Univ. Coll. of Med., Richmond, 1896	1900	1900
**Harrison, Edward Thorne, High Point; Univ. of Va., 1926	1926	1928
Harvey, Wallace Watson, Greensboro; Emory, 1920	1922	1923
Henry, Marina Hoyt, Jamestown; Woman's Med. Coll. of Pa., 1938	1938	1940
Herring, Robert Alexander, High Point; Tulane, 1905	1923	1924
**Holladay, Lewis Winston, High Point; Med. Coll. of Va., 1929	1936	1937
Holt, Duncan Waldo, Greensboro; Jefferson, 1918	1918	1921
Jackson, Walter Leo (Hon.), High Point; N. C. Med. Coll., 1911	1911	1913
Johnson, Harry Lester, Greensboro; Univ. of Cincinnati, 1924	1924	1927
Jones, William Merritt (Hon.), Greensboro; Univ. of Md., 1903	1903	1903
Keith, Marion Yates, Greensboro; Univ. of Md., 1923	1923	1927
**LeBauer, Maurice Leon, Greensboro; Univ. of Va., 1929	1930	1932
LeBauer, Sidney Ferring, Greensboro; Univ. of Va., 1929	1930	1932
Lennon, Hershel Clanton, Greensboro; Univ. of Pa., 1931	1931	1941
**Lewis, Walter Glenn, Stokesdale; Med. Coll. of Va., 1938	1938	1940
Little, Howard L., Gibsonville; Washington Univ., 1934	1934	1937
Lyday, Russell Osborne, Greensboro; Univ. of Pa., 1920	1920	1927
**Lyon, Brockton Reynolds, Greensboro; Columbia, 1915	1920	1920
Maness, Archibald Kelly, Greensboro; Jefferson, 1928	1928	1929
Mann, Ira Thurman, High Point; Jefferson, 1912	1912	1915
Mathews, Robert William, Greensboro; Emory, 1932	1937	1938
McAlister, Jean, Greensboro; Univ. of Pa., 1933	1936	1937
McAnally, William Jefferson (Hon.), High Point; Baltimore Med. Coll., 1897	1896	1899
McCain, Walkup Kennard, High Point; Jefferson, 1929	1929	1930
McCain, William R. (Hon.), High Point; Univ. of Md., 1897	1898	1898
McGee, Julian Murrill, Greensboro; Univ. of Pa., 1925	1927	1928
**Merritt, Jesse Fred, Greensboro; Northwestern, 1936	1937	1938
Miles, May Sallie (Hon.), Greensboro; Laura Memorial Woman's Med. Coll., Cincinnati, 1898	1904	1905
**Mills, Charles Rose, Greensboro; Univ. of Pittsburgh, 1936	1938	1938

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Norment, William Blount, Greensboro; Jefferson, 1922	1922	1932
Ogburn, Herbert Hammond, Greensboro; Johns Hopkins, 1913	1913	1914
Ownbey, Arthur Dennis, Greensboro; Med. Coll. of Va., 1920	1925	1927
Parker, Herman Richard, Greensboro; Syracuse Univ., 1923	1924	1925
**Parks, William Craig, Jr., High Point; Med. Coll. of S. C., 1938	1938	1940
Patterson, Fred Marion, Greensboro; Univ. of Pa., 1924	1924	1928
**Perry, Glenn Grey, High Point; Med. Coll. of Va., 1933	1933	1934
Pipes, David McKowen, Greensboro; Tulane, 1934	1939	1940
Post, John James, Nashville, Tenn.; Columbia, 1919	1925	1926
Prefontaine, J. Edouard, Greensboro; Laval Univ. of Quebec, 1927	1931	1934
Ravenel, Samuel Fitzsimons, Greensboro; Johns Hopkins, 1923	1923	1926
Reaves, William Perry (Hon.), Greensboro; Univ. of the South, 1903	1905	1907
**Register, John Francis, Greensboro; Med. Coll. of S.C., 1931	1936	1937
Reitzel, Claude Everett (Hon.), High Point; Atlanta Coll. of P. & S., 1902	1902	1902
Rhudy, Booker Ephram, Greensboro; Med. Coll. of Va., 1916	1926	1927
**Rubin, Adrian Stevens, Greensboro; N. Y. Med. Coll., 1937	1937	1941
**Rudd, James Colegate, Greensboro; Univ. of Tenn., 1931	1935	1935
Saunders, Stanley Stewart, High Point; Harvard, 1924	1926	1927
Schoonover, Robert Arnold (Hon.), Greensboro; Baltimore Med. Coll., 1905	1912	1912
Sharp, Oliver Ledbetter, Greensboro; Jefferson, 1922	1924	1925
Sharpe, Frank Alexander, Greensboro; Univ. of Pa., 1916	1916	1920
**Shelburne, Palmer Augustine, Greensboro; Univ. of Va., 1927	1928	1928
Shohan, Joseph, Greensboro; Coll. of P. & S., Baltimore, 1901	1914	1923
**Sikes, Charles Henry, Greensboro; Jefferson, 1931	1933	1934
Siske, Grady Cornell, Pleasant Garden; Chicago Med. Coll., 1936	1937	1938
Slate, John William, High Point; Univ. Coll. of Med., Richmond, 1900	1899	1925
Slate, Joseph Esmond, High Point; Tulane, 1934	1934	1937
Slate, Marvin Longworth, High Point; Univ. of Md., 1931	1931	1934
Smith, Alick Thomas (Hon.), Greensboro; Med. Coll. of Va., 1908	1910	1913
**Smith, Opie Norris, Greensboro; Univ. of Pa., 1933	1938	1938
**Smith, Roy Meadows, Greensboro; Univ. of Pa., 1934	1934	1937
Stanton, David A. (Hon.), High Point; Vanderbilt, 1887	1887	1891
Starr, Henry Frank, Greensboro; Jefferson, 1916	1916	1917
**Stelling, Richard Nunnally, Greensboro; Univ. of Ga., 1930	1933	1934
**Stevens, Joseph Blackburn, Greensboro; Duke, 1935	1940	1940
Stirewalt, Neale Summers, High Point; Univ. of Md., 1909	1915	1927
**Strickland, Horace Gilmore, Greensboro; Univ. of Md., 1930	1930	1937
Sumner, Emmett Ashworth, High Point; Baylor Univ., 1925	1926	1927
Tankersley, James William (Hon.), Greensboro; Jefferson, 1906	1906	1906
**Tannenbaum, Abraham Jack, Greensboro; Duke, 1935	1937	1940
Taylor, Frederick Raymond, High Point; Univ. of Pa., 1913	1913	1915
Taylor, James Nathaniel (Hon.), Greensboro; Med. Coll. of Va., 1901	1902	1905
Taylor, James Thomas (Hon.), Greensboro; Univ. of Md., 1908	1908	1910
Taylor, Shahane Richardson, Greensboro; Univ. of Pa., 1921	1921	1924
Thomas, Julius Graham, Greensboro; Med. Coll. of Va., 1915	1915	1920
Thompson, Claude Durant (Hon.), High Point; Univ. of Tenn., 1901	1901	1904
**Tice, Walter Thomas, High Point; Jefferson, 1927	1927	1929
**Tyson, Thomas David, Jr., High Point; Johns Hopkins, 1933	1933	1938
Vaughan, Edwin Warner, Greensboro; Univ. of Va., 1937	1940	1940
**Warwick, Hight Claudius, Greensboro; Med. Coll. of Va., 1934	1934	1936
Watson, Hugh Alfred, Greensboro; Med. Coll. of Va., 1930	1930	1941
**Whittington, Claude Thomas, Greensboro; Univ. of Md., 1927	1927	1929
Williams, John Drewey (Hon.), Guilford Station; Vanderbilt, 1898	1898	1898
**Williams, John Dudley, Jr., Greensboro; Temple, 1930	1931	1935
Wolfe, Hugh Claibourne, Greensboro; Med. Coll. of Va., 1917	1917	1920
**Wood, George Thomas, High Point; Jefferson, 1928	1928	1935
Woodruff, Fred Gwyn, High Point; Med. Coll. of Va., 1917	1917	1919
York, Alexander Arthur (Hon.), High Point; Chattanooga Med. Coll., 1907	1907	1908

HALIFAX COUNTY MEDICAL SOCIETY

President: Blowe, Ralph Boyd, Weldon; Med. Coll. of Va., 1938	1938	1941
Secretary: Hall, William Dewey, Roanoke Rapids; Med. Coll. of S. C., 1932	1933	1934
Bardin, Robert Malcolm, Roanoke Rapids; Tulane, 1929	1934	1935
Beckwith, Robert Payne, Roanoke Rapids; Univ. of Pa., 1911	1913	1916
Broun, Matthew Singleton, Roanoke Rapids; Columbia, 1919	1922	1922
Cole, Herman Alphonso, Roanoke Rapids; Univ. of Va., 1937	1939	1940
Covington, John Malloy Clayton, Roanoke Rapids; Univ. of Va., 1929	1930	1933
Jarman, Fontaine Graham, Roanoke Rapids; Univ. Coll. of Med., Richmond, 1911	1914	1916
Joyner, Powell Winfred, Enfield; Syracuse Univ., 1932	1932	1935
Justis, Linwood Hancock, Littleton; Med. Coll. of Va., 1916	1920	1920
Kroncke, Fred George, Roanoke Rapids; Univ. of Wisc., 1937	1941	1942
Maddrey, Milner Crocker, Roanoke Rapids; Jefferson, 1931	1931	1937

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Martin, John William, Roanoke Rapids; Med. Coll. of Va., 1916	1919	1920
Neville, Cecil Howell, Scotland Neck; Tulane, 1927	1927	1928
Nicholson, Benjamin M. (Hon.), Enfield; Univ. Coll. of Med., Richmond, 1910	1910	1912
Palmer, Horace, Littleton; Atlanta Sch. of Med., 1912	1912	1920
**Pollack, David, Hobgood; Med. Coll. of Va., 1935	1936	1937
**Robertson, Carroll Bracey, Jackson; Med. Coll. of Va., 1933	1934	1938
Smith, Oscar Fennell (Hon.), Scotland Neck; Univ. Coll. of Med., Richmond, 1899	1899	1905
**Stephenson, Bennett Edward, Weldon; Med. Coll. of Va., 1935	1935	1937
Suiter, Wester Ghio, Weldon; Med. Coll. of Va., 1917	1917	1920
**Taylor, Thomas Jefferson, Roanoke Rapids; Jefferson, 1934	1934	1937
Thigpen, Harry Gordon, Scotland Neck; Jefferson, 1917	1917	1920
Weathers, Bahnson, Roanoke Rapids; Washington Univ., 1917	1921	1922
Whitaker, Ferdinand Cary, Enfield; Maryland Med. Coll., 1911	1911	1919
White, Francis Willard Moody, Halifax; Med. Coll. of Va., 1924	1924	1924

HARNETT COUNTY SOCIETY

President: Adair, William Edward, Erwin; Temple, 1938	1938	1941
Secretary: Peede, Alvin Wortham, Lillington; Jefferson, 1930	1930	1933
Byrd, William Carey, Angier; Jefferson, 1923	1925	1937
Corbett, Clarence Lee, Dunn; Emory, 1927	1927	1928
Doffermyre, Luther Randolph, Dunn; Temple, 1938	1938	1939
Fleming, Fred Henry, Coats; Tulane, 1930	1930	1933
Holt, William Preston, Sr. (Hon.), Erwin; Jefferson, 1895	1895	1901
**Hunter, William Blair, Lillington; Univ. of Pa., 1911	1913	1920
Johnson, John Ralph, Dunn; Med. Coll. of Va., 1932	1932	1941
Lineberry, John Alson, Lillington; Univ. of Pa., 1938	1938	1940
Martin, John Floyd (Hon.), Dunn; N. C. Med. Coll., 1905	1905	1908
McKay, Joseph F. (Hon.), Buies Creek; Med. Coll. of S. C., 1884	1885	1900
O'Dell, James Walter, Dunn; Univ. of Ga., 1926	1928	1929
Parker, Paul Godwin, Erwin; Med. Coll. of Va., 1916	1916	1917
**Poole, Marvin Bailey, Dunn; Med. Coll. of Va., 1938	1938	1941
**Senter, William J., Atlanta, Ga.	——	1942
Stanfield, William Wesley, Dunn; Med. Coll. of Va., 1932	1932	1940
**Wilson, Stephen Glenn, Angier; Med. Coll. of Va., 1930	1930	1932
**Wyatt, Arthur Thomas, Lillington; Jefferson, 1919	1919	1927

HAYWOOD COUNTY SOCIETY

President: Owen, Robert Harrison, Canton; Univ. of Pa., 1931	1931	1935
Secretary: Duckett, Virgil Howard, Canton; Univ. of Pa., 1930	1930	1932
Kirkpatrick, William L., Waynesville; Vanderbilt, 1894	1894	1895
**Lancaster, Newton Faris, Waynesville; Med. Coll. of Va., 1931	1932	1933
McCracken, John Rufus (Hon.), Waynesville; N. C. Med. Coll., 1902	1902	1903
Michal, Mary Barrows Harris, Waynesville; Yale, 1928	1938	1939
**Moore, Roy Hardin, Canton; Washington Univ., 1931	1931	1934
Owen, Charles Fletcher, Jr., Canton; Univ. of Pa., 1937	1937	1940
Owen, Margaret Lineberry, Canton; Univ. of Pa., 1932	1932	1936
Pate, James Frank, Canton; Med. Coll. of S. C., 1927	1927	1929
Reeves, Jerome Lyda, Canton; Vanderbilt, 1913	1913	1917
Roberson, Robert Stuart, Waynesville; Med. Coll. of Va., 1930	1930	1932
Russell, Jesse Milton (Hon.), Canton; Univ. of Nashville, 1911	1911	1912
Sisk, Crete Nixon, Waynesville; Univ. of Nashville, 1905	1922	1923
**Smith, Dudley Winn, Waynesville; Harvard, 1931	1935	1936
Stretcher, Robert Hatfield, Waynesville; Rush Med. Coll., 1927	1927	1930
Stringfield, Samuel Lanier (Hon.), Waynesville; Jefferson, 1905	1905	1906
Stringfield, Thomas, Sr. (Hon.), Waynesville; Vanderbilt, 1898	1898	1899
**Stringfield, Thomas, Jr., Waynesville; Univ. of S. C., 1934	1934	1937
**Westmoreland, Joseph Robert, Canton; Washington Univ., 1932	1932	1934

HENDERSON COUNTY SOCIETY

President: King, Duncan Ingraham Campbell, Hendersonville; Med. Coll. of S. C., 1935	1936	1937
Secretary: Sample, Robert Cannon, Hendersonville; Univ. of Pa., 1915	1915	1920
Brackett, William Ernest, Hendersonville; Jefferson, 1915	1915	1924
Brown, James Steven, Sr. (Hon.), Hendersonville; Northwestern, 1893	1894	1895
**Brown, James Steven, Jr., Hendersonville; Tulane, 1925	1926	1927
Corpening, Flave Hart, Horse Shoe; Jefferson, 1928	1928	1942
Dixon, Guy E. (Hon.), Hendersonville; St. Louis Coll. of P. & S., 1903	1903	1903
Fauntleroy, Joseph Whittlesey, Zirconia; Columbia, 1896	1900	1929
Fortescue, William Nicholas, Hendersonville; Duke, 1934	1934	1936
Kirk, William Redin (Hon.), Hendersonville; Central Univ. of Ky., 1891	1901	1903
**McDonald, Lester Bowman, Hendersonville; Jefferson, 1934	1934	1935

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Pay, Wilson Cyrus, Hendersonville; Univ. of Louisville, 1894	1938	1940
Russell, Lloyd Pacemas, Fletcher, Univ. of Nashville, 1901	1902	1903
Salley, Edward McQueen (Hon.), Hendersonville; Univ. of Md., 1905	1905	1908
Sumner, Thomas W., Hendersonville; Jefferson, 1910	1910	1911
Trotter, Fred Oscar, Hendersonville; Univ. of Minn., 1933	1934	1934
Weddington, James L., Hendersonville; Southern Med. Coll., Atlanta, 1898	1925	1926
HERTFORD COUNTY SOCIETY		
President: Cooke, Quinton Edwin, Murfreesboro; Med. Coll. of Va., 1937	1937	1939
Secretary: Matheson, Joseph Gaddy, Ahoskie; Jefferson, 1929	1929	1931
**Faison, Thomas Gideon, Winton; Med. Coll. of Va., 1932	1932	1937
Futrell, Lokie Melton, Murfreesboro; Med. Coll. of Va., 1914	1914	1918
Mitchell, Paul Hayne (Hon.), Ahoskie; Univ. Coll. of Med., Richmond, 1907	1907	1908
**Ruffin, Jennings Bryan, Ahoskie; Med. Coll. of Va., 1937	1937	1942
Ruffin, Joseph B., Powellsville; Univ. of the South, 1898	1906	1904
Walker, Louis Kyle, Ahoskie; Univ. of Md., 1911	1911	1917
HOKE COUNTY SOCIETY		
President: Murray, Robert Lebby, Raeford; Univ. of Md., 1923	1923	1925
Secretary: Thomas, Charles Darwin, Sanatorium; Univ. of Ind., 1926	1930	1930
Brown, George W. (Hon.), Raeford; Ky. Sch. of Med., 1898	1900	1900
Cook, William Eugene, Sanatorium; Washington Univ., 1930	1930	1934
Gray, Cyrus Leighton, Durham; Duke, 1937	1937	1940
Matheson, Robert Arthur, Raeford; Jefferson, 1926	1926	1928
McCain, Paul Pressly, Sanatorium; Univ. of Md., 1911	1914	1917
O'Briant, Albert Lee, Raeford; Jefferson, 1920	1920	1922
**Roper, William Hamilton, Sanatorium; Univ. of Va., 1930	1940	1941
HYDE COUNTY SOCIETY		
IREDELL-ALEXANDER COUNTIES SOCIETY		
President: Davis, James Wagner, Statesville; Univ. of Pa., 1913	1913	1915
Secretary: Skeen, Leo Brown, Statesville; Univ. of Md., 1935	1935	1936
Bell, Andrew E. (Hon.), Mooresville; Univ. of Md., 1897	1897	1904
**Bittinger, Charles Lewis, Mooresville; Univ. of Va., 1935	1936	1937
Clayton, Milton Burns, Washington, D. C.; Univ. of Louisville, 1917	1933	1935
Crouch, Thomas Dalton, Stony Point; N. C. Med. Coll., 1909	1909	1915
**Edgerton, Glenn Souders, Statesville; Temple, 1932	1932	1934
Gibson, Lauren Osborne, Statesville; N. C. Med. Coll., 1913	1913	1915
Goode, Thomas Vance, Statesville; Univ. Coll. of Med., Richmond, 1912	1912	1916
Herman, Charles Bernard, Statesville; Jefferson, 1923	1923	1925
**Holbrook, Joseph Samuel, Statesville; Univ. of Pa., 1932	1932	1934
Little, Lonnie Marcus, Statesville; Jefferson, 1925	1925	1927
McElwee, Ross Simonton (Hon.), Statesville; Univ. of Md., 1909	1909	1910
McLelland, William Davies, Mooresville; Jefferson, 1913	1913	1917
Myers, Dwight Loftin, Harmony; Tulane, 1925	1928	1929
Pressly, James Lowry, Statesville; Jefferson, 1925	1925	1928
Rhyne, Sam Albertus, Statesville; N. C. Med. Coll., 1915	1915	1920
Rice, Edmond Lee, Statesville; Emory, 1931	1942	1942
Robertson, James Mebane, Harmony; Temple, 1932	1932	1934
Shaw, Lloyd Roosevelt, Statesville; Med. Coll. of Va., 1930	1930	1931
Sloan, Allen Barry, Mooresville; Med. Coll. of Va., 1924	1924	1926
Talley, John Samuel, Troutmans; Univ. of N. C., 1909	1910	1917
**Tatum, Roy Carroll, Statesville; Jefferson, 1919	1919	1920
Taylor, George Winston (Hon.), Mooresville; N. C. Med. Coll., 1906	1906	1907
Templeton, John Young, Mooresville; Jefferson, 1912	1913	1927
Thurston, Asa, Taylorsville; Univ. of Md., 1909	1909	1914
JACKSON COUNTY SOCIETY		
Candler, Charles Z. (Hon.), Sylva; Atlanta Coll. of P. & S., 1901	1901	1904
Nichols, Alvan Alexander (Hon.), Sylva; Univ. of Nashville, 1898	1904	1904
Nichols, Asbury S. (Hon.), Sylva; Tenn. Med. Coll., 1906	1907	1913
JOHNSTON COUNTY SOCIETY		
President: Earp, Raymond Elmore, Selma; Univ. of Pa., 1928	1928	1941
Secretary: Grady, Edward Stephen, Smithfield; Tulane, 1937	1937	1942
Aycock, Francis Marion, Princeton; Med. Coll. of Va., 1921	1921	1926
Booker, Edward Nelson, Selma; Univ. of Va., 1925	1925	1930
Brooks, Harry Eskridge, Clayton; Med. Coll. of Va., 1917	1917	1923

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
**Bunn, James Harry, Jr., Smithfield; Univ. of Md., 1936	1936	1938
Davidian, Vartan A., Smithfield; Univ. of Kiev, Russia, 1919	1929	1930
Duncan, Stacy Allen, Benson; Tulane, 1924	1924	1925
Fitzgerald, John Herbert, Smithfield; Jefferson, 1920	1920	1922
Grady, James C. (Hon.), Kenly; Baltimore Univ. Sch. of Med., 1887	1887	1890
Hinnant, Milford (Hon.), Micro; Univ. of Md., 1912	1912	1913
Hocutt, Battle A. (Hon.), Clayton; Univ. of N. C., 1906	1906	1906
**Lassiter, Will Hardee, Jr., Selma; Med. Coll. of Va., 1938	1938	1939
McLemore, George A. (Hon.), Smithfield; Univ. of N. C., 1906	1906	1906
Rose, Abraham Hewitt (Hon.), Smithfield; Jefferson, 1906	1906	1906
**Sox, Carl Caughman, Kenly; George Washington Univ., 1932	1932	1936
Stanley, John Haywood (Hon.), Four Oaks; Univ. of N. C., 1904	1904	1906
**Upchurch, Thaddeus Gilbert, Smithfield; Duke, 1932	1932	1935
**Wharton, Charles Watson, Smithfield; La. State Univ., 1937	1937	1937
Wilson, William Gilliam, Smithfield; Jefferson, 1921	1921	1924
Woodard, Barney Lelon, Kenly; Univ. of Md., 1933	1933	1935
Yates, Percy Fenton, Clayton; Emory, 1935	1935	1938

JONES COUNTY SOCIETY

LEE COUNTY SOCIETY

President: Foster, John Franklin, Sanford; N. C. Med. Coll., 1916	1916	1919
Secretary: Blue, Waylon, Jonesboro; Med. Coll. of Va., 1925	1925	1926
**Byerly, James Hampton, Sanford; Northwestern, 1935	1936	1938
**Chiles, George Glasgow, Sanford; Med. Coll. of Va., 1926	1928	1928
Hartness, William Rufus, Jonesboro; Univ. of Louisville, 1938	1938	1939
James, Arthur Augustus, Jr., Sanford; Univ. of Pa., 1932	1932	1936
Knight, Floyd LaFayette, Sanford; Univ. of Va., 1924	1925	1926
Lutterloh, Isaac Hayden, Jr., Sanford; Jefferson, 1921	1921	1924
McIver, Lynn (Hon.), Sanford; Ky. Univ., 1901	1902	1902
Patterson, Joseph Halford, Broadway; Med. Coll. of Va., 1932	1932	1934
**Sowers, Roy Gerodd, Jonesboro; Univ. of Md., 1923	1923	1924

LENOIR COUNTY SOCIETY

President: Carr, Mathew Lee, LaGrange; Med. Coll. of Va., 1916	1916	1920
Secretary: Williams, Lynwood Earl, Kinston; Univ. of Pa., 1940	1940	1943
**Boney, Elwood Rantz, Kinston; Univ. of Pa., 1926	1926	1928
**Cranz, Oscar William, Kinston; Med. Coll. of Va., 1931	1934	1936
Davis, Rachel Darden, Kinston; Woman's Med. Coll. of Pa., 1932	1933	1934
**Fuller, Henry Fleming, Kinston; Univ. of Pa., 1936	1936	1939
Hardy, Ira May (Hon.), Kinston; Med. Coll. of Va., 1901	1902	1902
Keiter, William Eugene, Kinston; Washington Univ., 1931	1935	1935
Lee, Mike, Kinston; Tulane, 1926	1926	1927
Lee, Thomas Leslie, Kinston; Med. Coll. of Va., 1926	1926	1927
Moseley, Zebulon Vance, Kinston; Univ. Coll. of Med., Richmond, 1913	1913	1914
Offutt, Vernon Delmas, Kinston; Med. Coll. of Va., 1933	1935	1940
**Parrott, John Arendall, Kinston; Temple, 1940	1940	1942
Parrott, Mercer Cranor, Kinston; Tulane, 1917	1917	1919
Parrott, William Thomas (Hon.), Kinston; Tulane, 1899	1899	1901
Peery, Vance Price, Kinston; Med. Coll. of Va., 1916	1917	1917
Pritchard, George Littleton, La Grange; Univ. Coll. of Med., Richmond, 1913	1913	1926
**Reavis, Charles William, Kinston; Med. Coll. of Va., 1936	1936	1938
**Ruffin, David Winston, Pink Hill; Med. Coll. of Va., 1932	1932	1932
Sabiston, Frank, Kinston; Univ. of Md., 1918	1919	1926
**Temple, Rufus Henry, Kinston; Univ. of Pa., 1936	1936	1938
**Turrentine, Kilby Pairo, Kinston; Rush Med. Coll., 1931	1932	1933
**Tyndall, Robert Glenn, Kinston; Univ. of Pa., 1928	1928	1931
West, Bryan Clinton, Kinston; Univ. of Pa., 1924	1924	1926
West, Clifton Forrest, Kinston; Univ. of Pa., 1917	1917	1920
Whitaker, Paul Frederick, Kinston; Med. Coll. of Va., 1922	1922	1924
Wooten, Floyd Pugh, Kinston; Jefferson, 1920	1920	1923

LINCOLN COUNTY SOCIETY

President: Cornwell, Abner Milton, Lincolnton; George Washington Univ., 1927	1927	1928
Secretary: McGuire, Burrus Boyd, Lincolnton; Jefferson, 1918	1919	1928
Bandy, William Gaither, Lincolnton; Vanderbilt, 1908	1912	1914
Costner, Walter Vance, Lincolnton; Jefferson, 1924	1925	1927
Crowell, Lester Avant, Jr., Lincolnton; Tulane, 1930	1930	1930
Crowell, Lester Avant, Sr. (Hon.), Lincolnton; Baltimore Med. Coll., 1892	1892	1898
Davidson, John E. S. (Hon.), Charlotte; Univ. of Md., 1894	1898	1898
Edwards, Forest D., Lawndale; Atlanta Med. Coll., 1914	1916	1919

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Elliott, William Forrest, Lincolnton; Medico-Chir. Coll. of Pa., 1916	1916	1917
Fitzgerald, John Hill, Jr., Lincolnton; Univ. of Va., 1938	1940	1941
Gamble, John Reeves (Hon.), Lincolnton; Univ. of Tenn., 1911	1911	1912
Hoover, Charles Henry (Hon.), Crouse; Baltimore Med. Coll., 1903	1903	1903
Jacocks, W. P. (Hon.), Raleigh; Univ. of Pa., 1911	1911	1913
Shellem, Oliver William, Denver; N. C. Med. Coll., 1909	1909	1913
**Wilson, Samuel Allen, Lincolnton; Emory, 1937	1937	1940
MACON-CLAY COUNTIES SOCIETY		
Angel, Edgar, Franklin; Jefferson, 1928	1932	1932
Angel, Furman, Franklin; Jefferson, 1918	1923	1924
**Killian, Frank McClure, Franklin; Univ. of Louisville, 1929	1929	1930
Rogers, Wiley Astor (Hon.), Franklin; Univ. of Nashville, 1898	1898	1898
MADISON COUNTY SOCIETY		
McElroy, James Lawrence, Marshall; George Washington Univ., 1930	1930	1932
MARTIN-WASHINGTON-TYRRELL COUNTIES SOCIETY		
President: Papineau, Alban, Plymouth; Univ. of Pa., 1931	1933	1934
Secretary: Lewis, Sigma Van, Plymouth; Med. Coll. of Va., 1916	1916	1923
Bray, Thomas Latham, Plymouth; Univ. of Md., 1916	1916	1919
Brown, Victor Emanuel, Williamston; Syracuse Univ., 1935	1936	1937
Chaplin, Steenie Charles, Columbia; Jefferson, 1922	1931	1933
**Furgurson, Ernest Whitmal, Plymouth; Syracuse Univ., 1936	1937	1938
McGowan, Claudius, Plymouth; Med. Coll. of Va., 1917	1917	1922
Nelson, Robert J. (Hon.), Robersonville; Louisville Med. Coll., 1890	1890	1893
**Phelps, John Mahlon, Creswell; Jefferson, 1932	1932	1935
Rhodes, James Slade (Hon.), Williamston; Med. Coll. of Va., 1906	1906	1907
Walker, Ernest Thayer, Williamston; Univ. of Kansas, 1937	1939	1940
Ward, Jesse Elliott (Hon.), Robersonville; Univ. of Md., 1904	1904	1905
Ward, Vernon Albert, Robersonville; Jefferson, 1908	1908	1914
**Ward, Walter Elliott, Robersonville; Med. Coll. of Va., 1940	1940	1942
McDOWELL COUNTY SOCIETY		
President: McBee, Paul Thomas, Marion; Med. Coll. of Va., 1930	1930	1933
Secretary: Rowe, Virginia Copeland, Marion; Tulane, 1939	1939	1942
Butt, Romulus Brown, Marion; Emory, 1920	1920	1921
Hagna, Lewis William, Marion; Univ. of Pa., 1936	1938	1940
Hemphill, Clyde Hoke, Pasco, Washington; Univ. of Md., 1913	1913	1916
Johnson, John Brown, Old Fort; Univ. of Louisville, 1905	1914	1914
Jonas, John Frank (Hon.), Marion; Baltimore Med. Coll., 1903	1903	1903
Justice, Gaston B. (Hon.), Marion; Atlanta Coll. of P. & S., 1907	1907	1908
Kirby, Guy S. (Hon.), Marion; Univ. Coll. of Med., Richmond, 1897	1896	1903
McIntosh, Donald Munro (Hon.), Old Fort; Med. Coll. of Va., 1904	1907	1908
**McIntosh, Donald Munro, Jr., Marion; Univ. of Pa., 1933	1935	1936
Miller, John Floyd, Marion; Medico-Chir. Coll. of Phila., 1906	1915	1919
MECKLENBURG COUNTY SOCIETY		
President: Bost, Thomas Creasy, Charlotte; George Washington Univ., 1915	1920	1921
Secretary: Gilmour, Monroe Taylor, Charlotte; Harvard, 1936	1940	1941
Adams, James Robert, Charlotte; Univ. of Va., 1928	1932	1933
Alexander, James Moses, Charlotte; McGill Univ., 1934	1934	1937
Alexander, James Ramsey (Hon.), Charlotte; Univ. of Md., 1894	1894	1899
Ashe, John Rainey, Charlotte; Columbia, 1911	1915	1915
Austin, DeWitt Ray, Charlotte; Jefferson, 1917	1917	1919
Austin, Frederick Da Costa, Jr., Charlotte; Vanderbilt, 1937	1937	1939
Baker, Thomas Williams, Charlotte; Univ. of Pa., 1931	1931	1938
Barron, Archibald Alexander (Hon.), Charlotte; Vanderbilt, 1909	1910	1911
Baxter, Oscar Dixon, Charlotte; Jefferson, 1924	1924	1929
Black, George William, Charlotte; Med. Coll. of Va., 1924	1924	1925
Blair, Andrew, Charlotte; Univ. of Pa., 1924	1925	1926
Bradford, Wallace Brown, Charlotte; Univ. of Pa., 1932	1932	1937
Bradford, Williamson Ziegler, Charlotte; Univ. of Pa., 1928	1928	1930
Brenizer, Addison Gorgas (Hon.), Charlotte; Johns Hopkins, 1908	1911	1911
**Britt, Charles Summey, Charlotte; Emory, 1920	1925	1926
**Bunch, Charles, Charlotte; Univ. of S. C., 1931	1931	1935
**Byrnes, Thomas Henderson, Charlotte; Med. Coll. of S. C., 1926	1932	1932
**Cornell, William Sessions, Charlotte; Emory, 1931	1938	1938
Craven, Thomas W., Huntersville; Jefferson, 1917	1917	1919

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Craven, William Wilhelm (Hon.), Charlotte; Univ. of Md., 1903	1904	1911
Daniel, Walter Eugene, Charlotte; Med. Coll. of Va., 1931	1938	1938
De Armon, John McCamie (Hon.), Charlotte; Univ. of Md., 1886	1886	1887
Elliott, Joseph Alexander, Charlotte; Univ. of Mich., 1914	1919	1920
Faison, Elias, Charlotte; Emory, 1929	1929	1933
Ferguson, Robert Thrift, Charlotte; Univ. Coll. of Med., Richmond, 1906	1909	1922
**Fleming, Laurence Edwin, Charlotte; Univ. of Pa., 1931	1931	1934
Franklin, Ernest Washington, Charlotte; Univ. of Pa., 1930	1930	1932
Gage, Lucius Gaston, Charlotte; Univ. of Va., 1915	1921	1922
Gaul, John Stuart, Charlotte; Medico-Chir. Coll. of Phila., 1913	1922	1923
**Gay, Charles Houston, Charlotte; Duke, 1933	1936	1938
Gibbon, James Wilson, Charlotte; Jefferson, 1918	1920	1921
Gibbon, Robert Lardner (Hon.), Charlotte; Jefferson, 1887	1887	1888
Hamer, William Alexander, Charlotte; Univ. of Md., 1930	1930	1932
Hand, Edgar Hall (Hon.), Charlotte; N. C. Med. Coll., 1907	1907	1913
Hart, Verling Kersey, Charlotte; Univ. of Pa., 1921	1924	1925
**Hawes, George Aubrey, Charlotte; Vanderbilt, 1933	1939	1939
Hipp, Edward Reginald, Charlotte; Univ. of Va., 1918	1920	1921
Holton, Thomas Jefferson, Charlotte; Emory, 1909	1925	1926
Hovis, Leighton Watson (Hon.), Charlotte; N. C. Med. Coll., 1904	1904	1906
Hunt, Jasper Stewart, Charlotte; Vanderbilt, 1929	1932	1933
**Jacobs, Julian Erich John, Charlotte; Univ. of Nebraska, 1935	1939	1940
Johnston, James Gilliam, Charlotte; Vanderbilt, 1899	1913	1916
**Johnston, William Oliver, Charlotte; Vanderbilt, 1936	1936	1940
Jones, Grace Germania, Charlotte; Woman's Med. Coll. of Pa., 1934	1942	1943
**Jones, Otis Hunter, Charlotte; Columbia, 1933	1933	1937
Kelly, Luther Wrentmore, Charlotte; Univ. of Va., 1924	1926	1927
Kennedy, John Pressly, Charlotte; Jefferson, 1915	1915	1920
Kimmelstiel, Paul, Charlotte; Tuebingen, Germany, 1926	1942	1941
King, Parks McCombs (Hon.), Charlotte; N. Y. Univ., 1902	1902	1904
Kossove, Albert Anthony, Charlotte; Med. Coll. of Va., 1938	1940	1941
Kossove, Irene Levy, Charlotte; Med. Coll. of Va., 1939	1940	1941
Lafferty, Robert Hervey (Hon.), Charlotte; N. C. Med. Coll., 1906	1906	1906
Leinbach, Robert Frederic (Hon.), Charlotte; Univ. of Pa., 1907	1907	1910
MacConnell, John Wilson (Hon.), Davidson; Univ. of Md., 1907	1908	1909
**Martin, William Francis, Charlotte; Univ. of Md., 1920	1920	1923
Martin, William J., Davidson; Univ. of Va., 1890	1891	1919
Massey, Charles Caswell, Charlotte; Jefferson, 1923	1923	1925
Matthews, Vann Marshall, Charlotte; Univ. of Pa. 1918	1918	1921
**Matthews, William Camp, Davidson; Univ. of Va., 1937	1939	1939
Mayer, Walter Brem, Charlotte; Univ. of Pa., 1930	1932	1933
McCoy, Thomas Marshall (Hon.), Charlotte; N. C. Med. Coll., 1905	1906	1906
**McDonald, Angus Morris, Charlotte; Univ. of Pa., 1928	1935	1937
McKay, Hamilton Witherspoon (Hon.), Charlotte; Jefferson, 1910	1911	1913
McKay, Robert Witherspoon, Charlotte; Johns Hopkins, 1923	1928	1928
McKnight, Roy Bowman, Charlotte; Univ. of Pa., 1920	1920	1928
McLaughlin, Calvin Sturgis (Hon.), Charlotte; Univ. of Md., 1896	1896	1903
**McLaughlin, Calvin Sturgis, Jr., Charlotte; Univ. of Tenn., 1935	1937	1937
McLean, Ewen Kenneth, Charlotte; Univ. of Texas, 1919	1927	1928
McPhail, Lorenzo Dow (Hon.), Charlotte; Univ. of Md., 1900	1900	1902
Miller, Oscar Lee, Charlotte; Atlanta Coll. of P. & S., 1912	1921	1922
**Montgomery, John Christian, Charlotte; Univ. of Pa., 1932	1935	1936
Moore, Alexander Wylie (Hon.), Charlotte; Univ. of Va., 1901	1912	1913
Moore, Oren (Hon.), Charlotte; N. C. Med. Coll., 1911	1911	1912
Moore, Robert Ashe, Charlotte; Univ. of Pa., 1923	1924	1925
Motley, Fred Elliott, Charlotte; Univ. of Mich., 1922	1926	1927
**Munroe, Henry Stokes, Jr., Charlotte; Duke, 1935	1937	1940
Munroe, Henry Stokes, Sr., Charlotte; N. C. Med. Coll., 1902	1902	1904
Myers, Alonzo Harrison, Charlotte; N. C. Med. Coll., 1911	1911	1920
Myers, John Quincy (Hon.), Charlotte; N. C. Med. Coll., 1904	1904	1904
Nalle, Brodie Crump (Hon.), Charlotte; Univ. of Va., 1903	1905	1905
Nance, Charles Lee, Charlotte; N. C. Med. Coll., 1919	1921	1922
**Naumoff, Philip, Charlotte; Duke, 1937	1939	1939
Neblett, Herbert Clarence, Charlotte; Med. Coll. of Va., 1914	1921	1929
Newell, Leon Burns (Hon.), Charlotte; Univ. of N. C., 1905	1905	1906
Newton, Howard Lowell, Charlotte; Northwestern, 1921	1923	1925
Nisbet, Douglas Heath, Charlotte; Harvard, 1917	1917	1920
Northington, James Montgomery (Hon.), Charlotte; Med. Coll. of Va., 1905	1909	1909
**Nowlin, George Preston, Charlotte; Univ. of Va., 1924	1929	1930
Orr, William Law, Matthews; N. C. Med. Coll., 1914	1914	1943
**Palmgren, Einar Alexander, Jr., Charlotte; Hahnemann Med. Coll., 1941	1941	1942
Peeler, Clarence N. (Hon.), Charlotte; N. C. Med. Coll., 1906	1906	1908
Petteway, George Henry, Charlotte; N. C. Med. Coll., 1913	1913	1914

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Pettus, William Henry, Jr., Charlotte; Cornell, 1937	1941	1942
**Pitts, William Reid, Charlotte; Harvard, 1933	1939	1940
**Query, Richard Zimri, Jr., Charlotte; Duke, 1934	1937	1938
Rankin, Watson Smith (Hon.), Charlotte; Univ. of Md., 1901	1901	1901
Ranson, John Lester (Hon.), Charlotte; N. C. Med. Coll., 1911	1911	1912
Ray, Frank Leonard, Charlotte; Med. Coll. of Va., 1919	1919	1922
Reid, Calvin Graham, Charlotte; Univ. of Pa., 1935	1938	1939
Reid, Ralph Connor, Charlotte; Columbia, 1940	1942	1943
Reid, Thomas Neely (Hon.), Matthews; Univ. of N. Y., 1891	1891	1904
Robinson, Charles Wilson, Charlotte; Univ. of Pa., 1930	1930	1932
Ross, Otho Bescent (Hon.), Charlotte; Univ. of Pa., 1909	1909	1912
**Ross, Thomas Wallace, Charlotte; Jefferson, 1927	1927	1930
**Sanger, W. Paul, Charlotte; Vanderbilt, 1931	1937	1938
Scruggs, William Marvin, Charlotte; Univ. of Pa., 1914	1914	1920
Seay, Hillis Ledbetter, Huntersville; Vanderbilt, 1930	1933	1934
Selby, William Elledge, Charlotte; Temple, 1934	1934	1936
Shirley, Harold Clinkscales, Charlotte; Johns Hopkins, 1918	1921	1922
Shull, Joseph Rush (Hon.), Charlotte; Univ. of Pa., 1910	1910	1913
Sloan, Henry Lee, Charlotte; Univ. of Pa., 1911	1913	1920
Smith, Franklin Calton, Charlotte; Jefferson, 1921	1921	1925
Sparrow, Thomas DeLamar, Charlotte; Univ. of Pa., 1920	1920	1923
Squires, Claude Babbington, Charlotte; Jefferson, 1919	1919	1921
Summerville, W. Monroe, Charlotte; Emory, 1936	1936	1937
**Taylor, Andrew DuVal, Charlotte; Univ. of Md., 1934	1934	1937
**Teasdale, Laurie Redmond, Charlotte; Dalhousie Univ. Faculty of Med., 1936	1936	1940
Thompson, Silas Raymond, Charlotte; N. C. Med. Coll., 1914	1914	1915
Todd, Lester Claire, Charlotte; Univ. of Mich., 1918	1920	1920
Townsend, Maurice Lyndon (Hon.), Society Hill, S. C.; Ind. Med. Coll., 1906	1912	1913
Tuggle, Allan Davis, Charlotte; Univ. of Louisville, 1936	1940	1941
Tydeman, Frederick William Louis, San Francisco; N. C. Med. Coll., 1912	1912	1918
Wannamaker, Edward Jones, Jr., Charlotte; Univ. of Pa., 1921	1924	1925
Welton, David Goe, Charlotte; Univ. of Wis., 1935	1939	1939
Whisnant, Albert Miller (Hon.), Charlotte; Coll. of P. & S., Baltimore, 1893	1893	1899
**White, Thomas Preston, Charlotte; Univ. of Pa., 1922	1924	1925
**Williams, McChord, Charlotte; Harvard, 1937	1937	1942
Winkler, Harry, Charlotte; Rush Med. Coll., 1929	1931	1931
Woods, James Baker, Jr., Davidson; Med. Coll. of Va., 1922	1942	1943

MITCHELL-YANCEY COUNTIES SOCIETY

President: Williams, Lester L., Spruce Pine; Med. Coll. of S. C., 1880	1924	1927
Secretary: Gouge, Arthur Edward, Bakersville; Med. Coll. of Va., 1917	1917	1920
Bennett, William Lewis, Burnsville; Lincoln Memorial Univ., 1911	1932	1933
**Jones, Roderic Orlando, Burnsville; Duke, 1935	1938	1942
Peterson, Charles A. (Hon.), Spruce Pine; N. C. Med. Coll., 1907	1907	1908

MONTGOMERY COUNTY SOCIETY

Eckerson, Charles Neil, Troy; Med. Coll. of Va., 1935	1935	1942
Harris, William Thomas, Troy; Med. Coll of Va., 1925	1926	1927
McMillan, John M. (Hon.), Candor; Atlanta Coll. of P. & S., 1909	1909	1911
Rankin, Pressly Robinson (Hon.), Mt. Gilead; N. C. Med. Coll., 1910	1910	1912
Thompson, Alexander Frank (Hon.), Troy; Med. Coll. of Ind., 1895	1895	1904

MOORE COUNTY SOCIETY

President: Monroe, Clement Rosenburg, Pinehurst; Univ. of Md., 1924	1925	1930
Secretary: Rosser, Robert Guthrie (Hon.), Vass; N. C. Med. Coll., 1909	1909	1911
Blue, Alex McNeill, Carthage; Tulane, 1915	1916	1918
Bowen, James Poore, Aberdeen; Univ. of Md., 1929	1932	1934
Bowman, Hugh Edgar (Hon.), Aberdeen; N. C. Med. Coll., 1904	1904	1905
Chester, Pinkney Jones, Southern Pines; N. C. Med. Coll., 1913	1913	1920
Drake, Benjamin Michael, Carthage; Vanderbilt, 1931	1931	1941
**Felton, Robert Lee, Jr., Carthage; Univ. of Pa., 1927	1927	1930
Grier, Charles Talmadge, Carthage; N. C. Med. Coll., 1910	1912	1913
Kemp, Malcolm Drake, Pinebluff; Washington Univ., 1930	1930	1936
Marr, Myron Whitmore, Pinehurst; Tufts Med. Sch., 1907	1909	1915
McLeod, Alexander H. (Hon.), Aberdeen; Baltimore Med. Coll., 1896	1896	1904
McLeod, Vida Canaday, Southern Pines; Baylor Univ., 1919	1931	1931
Milliken, James Shepard, Southern Pines; Jefferson, 1915	1915	1916
Mudgett, William Chase (Hon.), Southern Pines; Maryland Med. Coll., 1903	1908	1908
Owens, Francis Leroy, Pinehurst; Duke, 1934	1935	1938
Street, M. Eugene (Hon.), Glendon; Coll. of P. & S., Baltimore, 1893	1893	1902

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Street, Murdo Eugene, Jr., Glendon; Duke, 1937	1941	1942
**Stutz, Malcolm Greer, Southern Pines; Med. Coll. of Va., 1934	1934	1936
Symington, John, Carthage; Univ. of Md., 1902	1927	1928
Willcox, Jesse Womble (Hon.), Wilmington; Univ. of N. C., 1906	1906	1906

NASH—SEE EDGECOMBE-NASH

NEW HANOVER COUNTY SOCIETY

President: Hooper, Joseph Ward, Wilmington; Univ. of Md., 1909	1912	1917
Secretary: Farthing, John Watts, Wilmington; Univ. of Pa., 1933	1938	1939
**Anderson, Elbert Carl, Wilmington; Northwestern, 1937	1937	1939
Barefoot, Graham Ballard, Wilmington; Jefferson, 1923	1923	1924
**Barefoot, William Frederick, Wilmington; Tulane, 1934	1934	1935
Bellamy, Robert Hartlee (Hon.), Wilmington; Jefferson, 1902	1902	1902
**Black, Paul Adrian Lawrence, Wilmington; Coll. of Med. Evangelists, 1932	1935	1938
**Brown, Landis Gold, Southport; Northwestern, 1934	1935	1938
Bulluck, Ernest Southerland (Hon.), Wilmington; Univ. of Md., 1911	1911	1912
Codington, Herbert Augustus, Wilmington; Univ. of Md., 1911	1915	1917
Coleman, Howe Reese, Wilmington; Univ. of Va., 1929	1941	1942
Cranmer, John B. (Hon.), Wilmington; Univ. of N. C., 1905	1905	1906
Crouch, Auley McRae, Wilmington; Jefferson, 1916	1916	1918
Davis, Charles Burdis, Wilmington; Univ. of Pa., 1935	1935	1939
Dosher, William Sterling, Wilmington; Med. Coll. of Va., 1930	1930	1934
Elliot, Avon Hall, Wilmington; Jefferson, 1919	1919	1921
Evans, John Ebenezer, Wilmington; Univ. of Md., 1916	1916	1921
**Fales, Robert Martin, Wilmington; Jefferson, 1932	1932	1936
**Fay, Oliver Frederick, Wilmington; Med. Coll. of Va., 1930	1934	1935
Fergus, Leroy Clark, Southport; Med. Coll. of Va., 1935	1937	1938
Freeman, Jere David, Wilmington; Med. Coll. of Va., 1918	1921	1922
**Graham, Charles Pattison, Wilmington; Harvard, 1932	1932	1937
Hare, Ransom Bryant, Wilmington; Med. Coll. of S. C., 1930	1933	1934
Harriss, Andrew Howell (Hon.), Wilmington; Medico-Chir. Coll. of Phila., 1893	1892	1894
Hoggard, John Thomas, Wilmington; Univ. Coll. of Med., Richmond, 1906	1906	1922
Johnson, George W., Wilmington; Univ. of Pa., 1920	1920	1921
Koonce, Donald B., Wilmington; Univ. of Pa., 1929	1929	1934
Koonce, S. Everett (Hon.), Wilmington; Coll. of P. & S., Baltimore, 1896	1896	1900
Lounsbury, James Breckinridge, Wilmington; Yale, 1935	1941	1942
McEachern, Duncan Roland, Wilmington; Med. Coll. of Va., 1932	1932	1935
Mebane, William Carter, Jr., Wilmington; Univ. of Md., 1931	1932	1934
Moore, William Houston (Hon.), Wilmington; Jefferson, 1910	1910	1911
Murchison, David Reid, Wilmington; Johns Hopkins, 1916	1922	1923
Pruitt, Samuel Orr, Wilmington; Univ. of Md., 1916	1929	1941
Robertson, James Farish, Wilmington; Univ. of Pa., 1913	1913	1916
**Rodman, Robert Boyd, Wilmington; Med. Coll. of S. C., 1928	1928	1930
**Rosenbaum, Maurice Milton, Shallotte; Univ. of Buffalo, 1934	1936	1937
Sidbury, James Buren, Wilmington; Columbia, 1912	1915	1916
Sloan, David Bryan, Wilmington; Univ. of Pa., 1914	1914	1920
**Sullivan, Victor Thaddaeus, Wilmington; Med. Coll. of Va., 1931	1931	1934
Thompson, George Richard Cunliffe, Wilmington; Med. Coll. of S. C., 1939	1942	1943
Walden, Kennon C., Wilmington; Med. Coll. of Va., 1930	1943	1943
Walker, Elmer Pixley, Wilmington; Emory, 1936	1936	1941
Wessell, John Charles (Hon.), Wilmington; Univ. of Md., 1900	1900	1900

NORTHAMPTON COUNTY SOCIETY

Fleetwood, Joseph Anderton, Conway; Tulane, 1921	1921	1923
Lister, John L. (Hon.), Jackson; Med. Coll. of Va., 1896	1896	1909
Outland, Robert Boone, Rich Square; Univ. of Pa., 1932	1933	1936
Vaughan, Joseph Clinton, Rich Square; Med. Coll. of Va., 1915	1915	1917

ONSLOW COUNTY SOCIETY

President: Bryan, Lorenzo Dow (Hon.), Sneads Ferry; Tulane, 1910	1910	1911
Secretary: Gurganus, George Elwood, Jacksonville; Temple, 1937	1937	1939
Bell, Orville Earl, Richlands; Oklahoma Univ., 1936	1937	1938
Corbett, James Patrick, Swansboro; George Washington Univ., 1928	1928	1930
Henderson, John Percy, Jacksonville; Med. Coll. of Va., 1918	1919	1921
**Kendall, John Harold, Richlands; Coll. of Med. Evangelists, 1934	1935	1935
Stevens, Hamilton Wright, Jr., Jacksonville; Jefferson, 1938	1938	1940
Turlington, William Troy, Jr., Jacksonville; Univ. of N. Y., 1929	1929	1930

ORANGE—SEE DURHAM-ORANGE

** Denotes Fellows in Service

PAMLICO COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
**President: Dees, Daniel Alfonso (Hon.), Bayboro; Baltimore Med. Coll., 1903	1903	1905
Secretary: Purdy, James Jarrett, Oriental; Med. Coll. of Va., 1900	1914	1915
McCotter, St. Elmo (Hon.), Bayboro; Atlanta Coll. of P. & S., 1908	1908	1909

PASQUOTANK-CAMDEN-CURRITUCK-DARE COUNTIES SOCIETY

President: Peters, William Anthony, Elizabeth City; Med. Coll. of Va., 1915	1915	1916
Secretary: Salters, Frederic Hay, Elizabeth City; Med. Coll. of S. C., 1935	1939	1940
Barkwell, John H., Weeksville; Atlanta Sch. of Med., 1908	1924	1925
Bonner, John Bryan Havens, Elizabeth City; Med. Coll. of Va., 1932	1932	1941
Fearing Isaiah (Hon.), Elizabeth City; Coll. of P. & S., Baltimore, 1896	1896	1904
Gill, Joseph Armstrong, Elizabeth City; Syracuse Univ., 1932	1932	1936
Griggs, William T. (Hon.), Poplar Branch; Univ. of Va., 1896	1896	1901
Johnston, Wiley Warren, Manteo; N. C. Med. Coll., 1913	1913	1915
Owens, Zack Doxey, Elizabeth City; Univ. of Md., 1930	1930	1940
Parker, James Jarvis, Elizabeth City; Temple, 1939	1939	1942
**Smith, Edward Barney, Elizabeth City; Univ. of Va., 1939	1940	1940
Walker, Herbert Dillon (Hon.), Elizabeth City; Univ. of Md., 1902	1902	1902
White, William Henry Clay, Elizabeth City; Univ. of Va., 1922	1929	1930

PENDER COUNTY SOCIETY

Taylor, William Ivey (Hon.), Burgaw; N. C. Med. Coll., 1902	1904	1905

PERQUIMANS—SEE CHOWAN-PERQUIMANS

PERSON COUNTY SOCIETY

President: Beam, Hugh Martin, Roxboro; Columbia, 1918	1918	1919
Secretary: Fitzgerald, John Dean, Roxboro; Duke, 1934	1934	1937
**Allen, Albert Lanham, Roxboro; Med. Coll. of S. C., 1933	1934	1935
Gentry, George W. (Hon.), Roxboro; Univ. of N. C., 1910	1910	1911
Hedgpeth, Emmett Martin, Roxboro; Northwestern, 1936	1937	1938
Love, Bedford E. (Hon.), Roxboro; Univ. of Md., 1904	1904	1905
Merritt, John Hamlett (Hon.), Woodsdale; Univ. of N. C., 1906	1907	1908
Nichols, Austin Flint (Hon.), Roxboro; Univ. of N. C., 1908	1908	1909
Thaxton, Benjamin Adams, Roxboro; Jefferson, 1914	1914	1916

PITT COUNTY SOCIETY

President: Moore, Davis Lee, Winterville; Jefferson, 1936	1936	1938
Secretary: Brooks, Fred Philips, Greenville; Univ. of Mich., 1933	1933	1935
**Armistead, Drury Branch, Greenville; Med. Coll. of Va., 1931	1935	1936
**Aycock, Edwin Burtis, Greenville; McGill Univ., 1936	1936	1940
Barrett, John Milton, Greenville; Univ. of Pa., 1926	1926	1928
Basnight, Thomas Gray (Hon.), Stokes; Univ. of Md., 1904	1905	1907
Beasley, Edward Bruce, Fountain; Univ. of Pa., 1911	1911	1915
**Brown, William Moye Benjamin, Greenville; Med. Coll. of Va., 1929	1929	1931
Crisp, Sellers Mark, Greenville; Univ. of Pa., 1923	1923	1926
Dixon, George Grady, Ayden; Med. Coll. of Va., 1915	1915	1917
Ennett, Nathaniel Thomas, Greenville; Med. Coll. of Va., 1907	1932	1934
Fitzgerald, Charles Edmund, Farmville; La. State Univ., 1937	1937	1940
Frizzelle, Mark T. (Hon.), Ayden; Univ. Coll. of Med., Richmond, 1907	1907	1907
Garrenton, Connell, Bethel; Univ. of Pa., 1935	1935	1937
**Haar, Frederick Behrend, Greenville; Jefferson, 1932	1932	1935
**Hammond, Alfred Franklin, Jr., Grifton; Jefferson, 1934	1934	1937
**Hawes, James Beebe, Greenville; Univ. of Va., 1932	1937	1938
Mewborn, John Moses, Farmville; Med. Coll. of Va., 1932	1932	1935
Pace, Karl Busbee, Greenville; Jefferson, 1914	1914	1920
Smith, Joseph, Greenville; Med. Coll. of Va., 1914	1916	1920
**Smith, Randall Collins, Ayden; Jefferson, 1923	1923	1926
Spiggle, Charles Harold, Grimesland; Med. Coll. of Va., 1928	1928	1930
**Taylor, Charles Whitfield, Hollister; Med. Coll. of Va., 1933	1933	1935
Tucker, Earl Van, Grifton; Med. Coll. of Va., 1930	1930	1935
**Tyson, J. J., Greenville; Med. Coll. of Va., 1928	1928	1930
**Ward, Needham Edgar, Greenville; Duke, 1932	1934	1934
Watson, Thomas Mervelle, Greenville; Tulane, 1919	1919	1920
Williams, Roderick Thomas, Farmville; Vanderbilt, 1937	1937	1942
Winstead, John Lindsay, Greenville; Univ. of Md., 1925	1925	1930
Wooten, William Isler, Greenville; Jefferson, 1920	1920	1921

POLK COUNTY SOCIETY

President: Palmer, Marion Cherigny, Tryon; Med. Coll. of S. C., 1910	1911	1914
Secretary: Preston, John Zenas, Tryon; Temple, 1934	1935	1937

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Jervey, Allen Jones, Tryon; Med. Coll. of S. C., 1905	1923	1926
**Jervey, William St. Julien, Tryon; Temple, 1939	1939	1942
Smith, Daniel Lesesne, Saluda; Med. Coll. of S. C., 1903	1926	1927
**Woody, John Wyckliffe Austin, Tryon; Univ. of Pa., 1937	1939	1940
RANDOLPH COUNTY SOCIETY		
President: Smith, Melvin Bowman, Ramseur; Univ. of Pa., 1938	1938	1940
Secretary: Craven, Franklin Clyde, Asheboro; Univ. of Md., 1913	1913	1914
Barnes, Dempsey, Asheboro; Med. Coll. of Va., 1925	1925	1927
Barnes, Jesse Thomas, Asheboro; Med. Coll. of Va., 1929	1929	1932
Barnes, Tiffany, Asheboro; Med. Coll. of Va., 1925	1925	1927
**Cannon, Eugene B., Asheboro; Vanderbilt, 1937	1937	1941
Fritz, Jacob Luther, Asheboro; Temple, 1936	1936	1938
Griffin, Harvey Lee, Asheboro; Med. Coll. of Va., 1926	1926	1928
Hubbard, Charles Calvin (Hon.), Farmer; Jefferson, 1888	1890	1900
Joyner, George William, Asheboro; Duke, 1932	1937	1938
Soady, John Hostley, Asheboro; Univ. of Toronto, 1905	1924	1926
Sumner, George Herbert, Asheboro; Tulane, 1923	1923	1924
Sykes, Rufus Preston, Asheboro; Tulane, 1929	1929	1931
RICHMOND COUNTY SOCIETY		
President: James, William Duer, Hamlet; La. State Med. Center, 1941	1941	1942
Secretary: Henry, Tidal Boyce, Rockingham; Columbia, 1917	1920	1921
Bristow, Charles Oliver, Rockingham; Jefferson, 1918	1920	1921
Caddell, Grover C., Hoffman; N. C. Med. Coll., 1912	1912	1930
Garrett, Frank Bernard, Rockingham; N. C. Med. Coll., 1912	1912	1914
Garrison, Ralph Bernard, Hamlet; Univ. of Md., 1933	1933	1935
Hatcher, Martin Armstead, Hamlet; Med. Coll. of Va., 1918	1920	1921
Howell, William Lawrence (Hon.), Ellerbe; N. C. Med. Coll., 1910	1910	1912
James, William Daniel (Hon.), Hamlet; Jefferson, 1908	1908	1910
Kinsman, Henry Francis (Hon.), Hamlet; Univ. of Vermont, 1894	1897	1904
Long, Zachary Fillmore, Rockingham; Univ. of Pa., 1928	1928	1930
McIntosh, William Rufus, Rockingham; N. C. Med. Coll., 1913	1916	1917
Milham, Claude Gilbert, Hamlet; Jefferson, 1927	1927	1930
Nicholson, Neill Graham, Jr., Rockingham; N. C. Med. Coll., 1917	1917	1920
Parsons, William Herbert, Ellerbe; N. C. Med. Coll., 1916	1916	1919
Terry, William Calvin, Hamlet; N. C. Med. Coll., 1911	1912	1914
Webb, William P. (Hon.), Rockingham; Med. Coll. of S. C., 1897	1897	1904
ROBESON COUNTY SOCIETY		
President: Hedgpeth, William Carey, Lumberton; Northwestern, 1933	1933	1936
Secretary: McAllister, Hugh Alexander, Lumberton; Duke, 1937	1937	1940
Allen, George Calvin, Lumberton; Rush Med. Coll., 1932	1933	1934
Baker, Horace Mitchell, Lumberton; Harvard, 1917	1919	1919
Beam, Russell S., Lumberton; Jefferson, 1912	1912	1914
**Bender, John Joseph, Red Springs; Coll. of P. & S., Boston, 1935	1937	1939
Bennett, Ernest Claxton, Elizabethtown; Med. Coll. of Va., 1926	1926	1927
**Benson, Norman Oliver, Lumberton; Univ. of Ga., 1930	1933	1934
**Biggs, John Irvin, Lumberton; Northwestern, 1932	1937	1938
Bowman, Earle Ledbetter, Lumberton; Med. Coll. of Va., 1914	1914	1916
Britt, James Norment, Lumberton; Atlanta Med. Coll., 1914	1923	1924
Bullock, Duncan Douglas, Rowland; Med. Coll. of S. C., 1920	1927	1939
Carmichael, Thaddeus Wirt, Rowland; Ky. Univ., 1904	1911	1919
**Croom, Robert DeVane, Jr., Maxton; Med. Coll. of Va., 1934	1934	1937
Currie, Daniel Smith (Hon.), Parkton; N. C. Med. Coll., 1906	1906	1906
Hardin, Eugene Ramsey, Lumberton; Univ. of Ga., 1911	1915	1920
Hedgpeth, Louten Rhodes, Lumberton; Univ. of Md., 1933	1933	1934
Hodgin, Henry Hiram (Hon.), Red Springs; N. C. Med. Coll., 1906	1906	1906
Holmes, Andrew Byron, Fairmont; Jefferson, 1910	1910	1914
Johnson, Charles Thomas, Red Springs; Jefferson, 1920	1920	1922
Johnson, Thomas Clarence (Hon.), Lumberton; Med. Coll. of Va., 1903	1903	1903
Kinlaw, Murray Carlyle, Pembroke; Temple, 1935	1936	1937
Knox, John (Hon.), Lumberton; Univ. of Md., 1906	1907	1907
**Lihn, Henry, Fairmont; Jefferson, 1938	1940	1940
Martin, James Alfred, Lumberton; Med. Coll. of Va., 1915	1915	1917
Martin, Thomas Adrian, Maxton; Univ. of Md., 1931	1939	1941
McClelland, Joseph O. (Hon.), Maxton; Med. Coll. of Va., 1908	1912	1913
**McGrath, Frank Bernard, Lumberton; Northwestern, 1933	1937	1938
McIntyre, Stephen, Lumberton; Jefferson, 1928	1928	1930
McMillan, Roscoe Drake (Hon.), Red Springs; Univ. of Md., 1910	1911	1912
Nash, John Frederick, St. Pauls; N. C. Med. Coll., 1914	1914	1916
Ricks, Leonard E. (Hon.), Fairmont; Med. Coll. of Va., 1896	1896	1898

** Denotes Fellows in Service

Name and Address	*Licensed*	*Joined State Society*
Smith, John McNeill (Hon.), Rowland; Jefferson, 1908	1908	1909
Townsend, Robert Glenn, St. Pauls; Tulane, 1927	1927	1934
**Weinstein, Morton Hannah, Fairmont; Northwestern, 1936	1937	1938
Weinstein, Rayford Lee, Fairmont; Jefferson, 1936	1936	1938

ROCKINGHAM COUNTY SOCIETY

President: Hester, William Shepherd, Reidsville; Jefferson, 1926	1929	1930
Secretary: Fetzer, Paul Williams, Reidsville; Univ. of Va., 1916	1916	1920
**Andes, Thomas Eugene, Leaksville; Temple, 1940	——	1942
Barham, Berlin Francis, Mayodan; Washington Univ., 1939	1939	1941
Casteen, Kenan, Leaksville; N. Y. Univ., 1918	1919	1921
**Cox, Alexander McNeil, Madison; Med. Coll. of Va., 1932	1932	1938
**Cozart, Benjamin Franklin, Reidsville; Med. Coll. of Va., 1931	1931	1931
Cummings, Michael Penn (Hon.), Reidsville; Jefferson, 1911	1911	1913
Dillard, George Penn, Draper; Bennett Med. Coll., 1916	1916	1919
Ferneyhough, William Todd, Reidsville; Univ. of Md., 1916	1926	1927
Forbes, Thomas Earl, Madison; Jefferson, 1940	1940	1942
Fulp, James Francis, Stoneville; Duke, 1935	1937	1940
**Johnson, Gaston Frank, Spray; Jefferson, 1934	1934	1938
Johnson, William Alexander (Hon.), Reidsville; N. C. Med. Coll., 1907	1909	1910
Klenner, Fred Robert, Reidsville; Duke, 1936	1937	1940
Matthews, William W., Leaksville; Chicago Coll. of Med. & Surg., 1913	1915	1916
McAnally, James McGehee, Reidsville; Univ. of Pa., 1927	1927	1928
McGehee, John William (Hon.), Reidsville; Univ. of Md., 1904	1904	1905
Moricle, C. Hunter, Leaksville; Univ. of Md., 1939	1939	1942
Pace, Samuel Eugene, Leaksville; Jefferson, 1932	1932	1939
**Price, Homer Hayden, Draper; Temple, 1938	1938	1940
Ray, John B. (Hon.), Leaksville; Baltimore Med. Coll., 1898	1898	1898
Ray, Samuel Philip, Leaksville; Univ. of Pa., 1929	1929	1931
Reynolds, Ernest Harold, Mayodan; N. Y. Univ., 1935	1935	1936
**Rudd, Paul Dalton, Reidsville; Med. Coll. of Va., 1932	1935	1935
Tuttle, Andrew Frier (Hon.), Spray; N. C. Med. Coll., 1901	1901	1906
Tyner, Carl Vann, Leaksville; N. Y. Univ., 1916	1916	1919
Watson, Paul Southerne, Madison; Med. Coll. of S. C., 1928	1928	1928
Wilson, Newton Graves, Madison; N. C. Med. Coll., 1914	1914	1915

ROWAN-DAVIE COUNTIES SOCIETY

President:		
Secretary: Field, Bob Lewis, Salisbury; Med. Coll. of Va., 1931	1933	1939
Treasurer: Coffey, James Cecil, Salisbury; Emory, 1937	1937	1940
Black, Oscar Reid, Landis; N. C. Med. Coll., 1914	1914	1918
Brown, Clarence Emanuel, Faith; N. C. Med. Coll., 1918	1920	1921
Busby, George Francis, Salisbury; Johns Hopkins, 1932	1932	1936
Busby, Julian Goode (Hon.), Salisbury; Univ. of Md., 1904	1904	1905
Byerly, Andrew B. (Hon.), Cooleemee; Univ. Coll. of Med., Richmond, 1896	1896	1904
Clement, Edward Buehler (Hon.), Salisbury; Jefferson, 1906	1906	1906
Coleman, Levy Aticus, Salisbury; Univ. of Ala., 1912	1927	1935
Eagle, James Carr, Spencer; Jefferson, 1923	1923	1925
**Frazier, John Wesley, Jr., Salisbury; Jefferson, 1924	1924	1927
Harding, Samuel Asberry (Hon.), Mocksville; N. C. Med. Coll., 1910	1910	1913
**Ketchie, James Meredith, Salisbury; Jefferson, 1922	1922	1925
**Long, William Matthews, Mocksville; Tulane, 1933	1934	1934
Lowery, John Robert (Hon.), Salisbury; Univ. of Md., 1904	1904	1913
Marsh, Frank Baker, Salisbury; Jefferson, 1919	1919	1922
McCutchan, Frank, Salisbury; Univ. of Va., 1920	1927	1928
McKenzie, Benjamin Whitehead, Salisbury; Jefferson, 1916	1916	1920
**Mock, Charles Glenn, Salisbury; Univ. of Pa., 1935	1935	1938
Monk, Henry Lawrence (Hon.), Salisbury; Med. Coll. of Va., 1899	1899	1903
**Moorefield, Robert Hoyle, North Kannapolis; Med. Coll. of Va., 1936	1936	1941
Newman, Harold Hastings, Salisbury; Johns Hopkins, 1913	1914	1916
Oliver, Joseph Andrew, Rockwell; Coll. of Med. Evangelists, 1933	1935	1937
Peeler, John H. (Hon.), Salisbury; Univ. Coll. of Med., Richmond, 1899	1899	1904
**Robertson, Lloyd Harvey, Salisbury; Univ. of Pa., 1929	1929	1931
Seay, Thomas Waller, Spencer; Univ. of Md., 1921	1922	1924
Shafer, Irving Everett, Salisbury; N. C. Med. Coll., 1914	1914	1914
Sigman, Frederick Grant (Hon.), Spencer; Univ. Coll. of Med., Richmond, 1909	1909	1910
Slate, Wesley C. (Hon.), Spencer; Univ. of Tenn., 1903	1903	1904
Spencer, Frederick Brunell (Hon.), Salisbury; Univ. of N. C., 1909	1909	1911
**Whicker, Max Evans, China Grove; Univ. of Md., 1932	1932	1934
Woodson, Charles Whitehead (Hon.), Salisbury; Columbia, 1904	1905	1907
Wyatt, Hubert Lee, China Grove; Med. Coll. of Va., 1916	1924	1925

* Denotes Fellows in Service

RUTHERFORD COUNTY SOCIETY

Name and Address	*Licensed*	*Joined State Society*
President: Bostic, William Chivous (Hon.), Forest City; N. C. Med. Coll., 1905	1905	1905
Secretary: Glenn, Charles Foster, Rutherfordton; Univ. of Louisville, 1914	1927	1928
Biggs, Montgomery Herman (Hon.), Rutherfordton; Univ. of Pa., 1897	1907	1908
**Bland, Charles Atlas, Forest City; Med. Coll. of Va., 1935	1937	1938
**Bostic, William Chivous, Jr., Forest City; Univ. of Pa., 1926	1926	1927
Crawford, Robert Hope, Rutherfordton; Johns Hopkins, 1914	1920	1921
Eaves, Rupert Spencer, Rutherfordton; Med. Coll. of Va., 1932	1932	1933
Elliott, William McBrayer, Forest City; Univ. of Ga., 1934	1934	1935
Gold, Charles Fortune (Hon.), Rutherfordton; Univ. of N. C., 1910	1910	1911
Harrill, Lawson Baxter (Hon.), Caroleen; Chattanooga Med. Coll., 1897	1902	1904
Head, William Thomas, Melvin Hill; Atlanta Coll. of P. & S., 1911	1911	1923
**Hudgins, Herbert Andrew, Rutherfordton; Emory, 1936	1936	1939
Hunt, James F. (Hon.), Spindale; Univ. of Tenn., 1900	1900	1912
Logan, Frank William Hicks, Rutherfordton; N. C. Med. Coll., 1916	1916	1919
Lovelace, Thomas Claude, Henrietta; N. C. Med. Coll., 1917	1920	1920
**Mitchell, Landis Patterson, Spindale; Washington Univ., 1938	1940	1941
Moss, George Oran, Cliffside; Emory, 1927	1927	1929
Rucker, Adin Adam (Hon.), Rutherfordton; Univ. of Md., 1908	1908	1909
Verner, Carl Hugh, Forest City; Atlanta Coll. of P. & S., 1912	1923	1927
Washburn, Benjamin Earl, Rutherfordton; Univ. of Va., 1911	1912	1917
Wilkinson, Louis Lee, Rutherfordton; Univ. of Va., 1926	1941	1941
Wiseman, Perry Haynes, Avondale; Med. Coll. of Va., 1925	1925	1926

SAMPSON COUNTY SOCIETY

President: Starling, Wyman Plato, Roseboro; Med. Coll. of Va., 1933	1933	1936
Secretary: Best, Glenn Eben, Clinton; Temple, 1938	1938	1940
Ayers, James Salisbury, Clinton; Jefferson, 1932	1932	1937
Brewer, James Street, Roseboro; Jefferson, 1919	1919	1921
**Cox, Samuel Clements, Kerr; Med. Coll. of Va., 1935	1935	1937
Crumpler, Paul (Hon.), Clinton; Univ. of Tenn., 1907	1907	1908
Johnson, Amos Neill, Garland; Univ. of Pa., 1933	1933	1935
Lee, J. Marshall, Newton Grove; Med. Coll. of Va., 1916	1920	1923
Parker, Oscar Lee, Clinton; Med. Coll. of Va., 1918	1918	1919
Royal, Donnie Martin, Salemburg; Med. Coll. of Va., 1926	1926	1928
Sessoms, Edwin Tate, Roseboro; N. C. Med. Coll., 1915	1915	1917
Sikes, Gibson L. (Hon.), Salemburg; Univ. Coll. of Med., Richmond, 1900	1900	1902
Sloan, William Henry, Garland; Univ. of Md., 1916	1916	1920
Small, Victor Roy, Clinton; Ohio State Univ., 1916	1920	1921
Williams, Jabez Herring, Clinton; Jefferson, 1920	1920	1922

SCOTLAND COUNTY SOCIETY

President: Pate, James Gibson, Gibson; Univ. of Pa., 1916	1916	1918
Secretary: Livingston, Everett Alexander (Hon.), Gibson; Univ. of Md., 1912	1912	1913
Buchanan, Luther Thomas, Laurinburg; Jefferson, 1913	1913	1918
**James, Albert Warren, Laurinburg; Jefferson, 1918	1918	1921
James, Fairley Patterson, Laurinburg; Univ. of Pa., 1916	1916	1917
John, Peter (Hon.), Laurinburg; Univ. of Md., 1897	1897	1904
Reed, Doctrine Hugh (Hon.), Wagram; George Washington Univ., 1901	1904	1906
Summerlin, Harry, Laurinburg; Med. Coll. of S. C., 1933	1933	1935
Wilkes, Marcus Branch, Laurinburg; N. C. Med. Coll., 1912	1923	1923

STANLY COUNTY SOCIETY

President: McKenzie, Wayland Nash, Albemarle; Med. Coll. of Va., 1935	1935	1937
Secretary: Burton, Herbert Walker, Badin; Med. Coll. of Va., 1941	1941	1943
Allen, Joseph A. (Hon.), New London; Univ. Coll. of Med., Richmond, 1901	1901	1904
Bigler, Victor Louis, Albemarle; Univ. of Pittsburgh, 1925	1926	1927
**Brunson, Edward Porcher, Albemarle; Jefferson, 1921	1922	1934
Dickson, Malcolm Shields, Oakboro; Med. Coll. of S. C., 1927	1927	1929
Dunlap, Lucius Victor (Hon.), Albemarle; Univ. of N. C., 1909	1909	1910
Gaskin, John Stover, Albemarle; Med. Coll. of S. C., 1925	1929	1931
Gaskin, Lewis Roy, Albemarle; Med. Coll. of S. C., 1921	1924	1926
Gaskin, Madge Baker, Albemarle; Med. Coll. of S. C., 1926	1933	1934
Hilborn, Caroline, Hemp; Cleveland Homeopathic Med. Coll., 1913	1923	1939
Hilborn, Robert Ross, Hemp; American Med. Missionary Coll., 1904	1923	1939
Hill, William Isaac (Hon.), Albemarle; Univ. of Md., 1897	1897	1904
**Lapsley, Alberti Fraser, Badin; Med. Coll. of Va., 1933	1936	1937
Laton, James Franklin (Hon.), Albemarle; N. C. Med. Coll., 1904	1904	1910
McLeod, William Louis, Norwood; Temple, 1938	1938	1940
Moore, Donald Bain, Badin; Univ. Coll. of Med., Richmond, 1913	1913	1915

** Denotes Fellows in Service

Name and Address	Licensed	Joined State Society
Outlaw, Jackson Kent, Albemarle; Syracuse Univ., 1923	1926	1934
Shaver, William Trantham, Albemarle; Univ. of Md., 1918	1920	1921
Tally, Bailey Thomas, Albemarle; Jefferson, 1921	1921	1922

STOKES—SEE FORSYTH-STOKES

SURRY-YADKIN COUNTIES SOCIETY

President: Beale, Seth McPherson, Elkin; Tulane, 1935	1936	1938
Secretary: Jolley, John William, Elkin; Univ. of Cincinnati, 1935	1939	1941
Abernethy, Olivia, Elkin; Med. Coll. of Va., 1940	1940	1942
Ashby, Edward Clayton, Mt. Airy; Univ. of Pa., 1914	1914	1916
Bell, Spencer Alexander, Hamptonville; Northwestern, 1935	1935	1938
Brandon, Henry Allen, Yadkinville; Syracuse Univ., 1935	1935	1940
Britt, Tilman Carlisle, Mt. Airy; Jefferson, 1921	1921	1925
Caldwell, Robert Manfred, Mt. Airy; Univ. of Va., 1936	1938	1940
Derbyshire, Robert Cushing, Albuquerque, N. Mex.; Johns Hopkins, 1936	1941	1942
Finney, Jonathan Richard, Boonville; N. C. Med. Coll., 1910	1910	1911
Flippin, James Meigs (Hon.), Pilot Mountain; Coll. of P. & S., Baltimore, 1884	1893	1900
Flippin, Samuel T. (Hon.), Siloam; N. C. Med. Coll., 1898	1898	1898
Franklin, Robert Benjamin Clinton, Mt. Airy; Queen's Univ., Kingston, Ontario, 1931	1938	1940
Gambill, Ira Samuel, Elkin; N. C. Med. Coll., 1912	1912	1917
Hall, Locksley Samuel, Yadkinville; Univ. of Tenn., 1926	1926	1930
Haywood, Charles Lewis, Elkin; Harvard, 1927	1929	1930
Johnson, Jeremiah Robert, Elkin; Med. Coll. of Va., 1927	1927	1929
Martin, Moir Saunders, Mt. Airy; Univ. Coll. of Med., Richmond, 1905	1909	1916
Mitchell, Roy Colonel, Mt. Airy; Univ. of Pa., 1919	1921	1923
Royall, M. A. (Hon.), Elkin; Coll. of P. & S., Baltimore, 1885	1889	1904
Salmons, Henry Clay (Hon.), Elkin; N. C. Med. Coll., 1904	1904	1908
**Smith, Robert Edwin, Mt. Airy; Univ. of Pa., 1923	1923	1926
Wellborn, William R., Elkin; N. C. Med. Coll., 1905	1908	1913

SWAIN COUNTY SOCIETY

**Bacon, Harold Lyle, Bryson City; Northwestern, 1934	1935	1936
Johnson, Edward John, Cherokee; Univ. of Iowa, 1930	——	1936
Weiters, John Christopher, Bryson City; Med. Coll. of S. C., 1912	1933	1934

TRANSYLVANIA COUNTY SOCIETY

President: Lynch, George Boyce, Brevard; Univ. of Md., 1914	1920	1923
Secretary: Wilkerson, Jesse Bert, Brevard; Memphis Hosp. Med. Coll., 1906	1923	1924
**Bradley, Harold John, Brevard; Univ. of Iowa, 1932	1932	1936
English, Edwin Strassbridge, Brevard; Univ. of the South, 1901	1902	1904
McLeod, Walter Guy, Rosman; Baylor Univ., 1921	1926	1927
**Newland, Charles Logan, Brevard; Med. Coll. of Va., 1927	1928	1932
**Osborne, Joseph Evans, Rosman; Med. Coll. of Va., 1930	1930	1930
**Sader, Julius, Brevard; N. Y. Univ., 1928	1938	1939
Stokes, Robert L., Brevard; Univ. of Md., 1903	1922	1942
Webster, Ben, Brevard; Georgetown Univ., 1900	1942	1942

TYRRELL—SEE MARTIN-WASHINGTON-TYRRELL

UNION COUNTY SOCIETY

President: Smith, George Marvin, Monroe; N. C. Med. Coll., 1914	1914	1919
Secretary: Love, William Marshall, Monroe; N. C. Med. Coll., 1915	1915	1919
Blair, Mott Parks (Hon.), Marshville; Med. Coll. of Va., 1895	1895	1895
Bolt, Conway Anderson, Marshville; Med. Coll. of S. C., 1926	1929	1930
Faulk, James Grady, Monroe; Med. Coll. of Va., 1931	1931	1932
Garren, Robert Hall (Hon.), Monroe; Univ. of Nashville, 1900	1901	1904
Goudelock, John Jefferies, Monroe; Med. Coll. of S. C., 1923	1924	1924
Ham, Clem, Monroe; Med. Coll. of S. C., 1926	1929	1930
**Hardin, Parker Calhoun, Monroe; Harvard, 1927	1937	1937
McLeod, John Purl Utley, Marshville; Coll. of Med. Evangelists, 1939	1939	1940
Neal, John William (Hon.), Monroe; N. Y. Univ., 1884	1887	1904
Neese, Kenneth Earle, Monroe; Washington Univ., 1929	1929	1934
Ormand, John William, Monroe; Univ. of Cincinnati, 1926	1926	1928
Williams, Edward Jerome, Monroe; N. Y. Univ., 1917	1920	1921

VANCE COUNTY SOCIETY

President: Newcombe, Andrew Purefoy, Henderson; Jefferson, 1922	1922	1924
Secretary: White, Clarence Hunt, Henderson; Tulane, 1928	1930	1935
Bass, Harris Hartwell, Henderson; Univ. of Pa., 1928	1929	1930
**Fenner, Edwin Ferebee (Hon.), Henderson; Univ. of Md., 1905	1906	1907

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Name and Address	*Licensed*	*Joined State Society*
Gregg, Alfred Dickson, Henderson; Med. Coll. of S. C., 1913	1927	1928
Newell, Hodge Albert (Hon.), Henderson; Coll. of P. & S., Baltimore, 1906	1906	1906
Noel, William Walker, Henderson; Johns Hopkins, 1929	1939	1940
**Rollins, Charles Dick, Henderson; Univ. of Pa., 1935	1935	1939
**Rollins, Vance Benton, Henderson; Univ. of Pa., 1932	1932	1936
Wheeler, James Hartwick, Henderson; Jefferson, 1918	1918	1920
WAKE COUNTY SOCIETY		
President: Hicks, Vonnie Monroe, Raleigh; Jefferson, 1918	1918	1922
Secretary: McGee, Robert Louis, Raleigh: Univ. of Pa., 1932	1932	1935
Ashby, Julian Warrington, Raleigh; Univ. of Md., 1905	1921	1922
Barbee, George S. (Hon.), Zebulon; Univ. of N. C., 1910	1910	1912
**Bolus, Michael, Raleigh; Jefferson, 1934	1934	1938
Brian, Earl Winfrey, Raleigh; Duke, 1934	1936	1939
Broughton, Arthur Calvin, Jr., Raleigh; Med. Coll. of Va., 1937	1937	1939
Buffalo, J. S. (Hon.), Garner; Baltimore Med. Coll., 1900	1900	1904
Bugg, Charles Richard, Raleigh; Johns Hopkins, 1922	1924	1926
Bulla, Alexander Chester, Raleigh; N. C. Med. Coll., 1915	1915	1918
Campbell, Alton Cook (Hon.), Raleigh; Univ. of N. C., 1910	1910	1912
Carson, Merl John, Raleigh; Vanderbilt, 1938	1938	1942
Caveness, Zebulan Marvin (Hon.), Raleigh; Univ. of N. C., 1903	1903	1903
Caviness, Verne Strudwick, Raleigh; Jefferson, 1921	1921	1926
Cheves, William Grey, Raleigh; Jefferson, 1925	1925	1933
Coleman, George Stephenson (Hon.), Raleigh; Med. Coll. of Va., 1907	1907	1908
Combs, Joseph John, Raleigh; Columbia, 1926	1926	1929
Cooper, George Marion (Hon.), Raleigh; Univ. Coll. of Med., Richmond, 1905	1905	1906
Cozart, Wiley Simon, Fuquay Springs; Med. Coll. of Va., 1914	1914	1917
Crumpler, Amos Gilmore, Fuquay Springs; Temple, 1936	1936	1938
Dewar, William Banks, Raleigh; Univ. of Pa., 1920	1920	1923
Dickinson, Kenneth D., Raleigh; Univ. of Minn., 1932	1935	1936
**Dryden, James Spencer, Raleigh; Med. Coll. of Va., 1933	1940	1940
Eldridge, Charles Patterson, Raleigh; Univ. of Pa., 1926	1926	1928
Fields, James Armstead, Raleigh; Med. Coll. of Va., 1917	1941	1941
Finch, Ollie Edwin, Raleigh; Jefferson, 1915	1915	1917
Flowers, Charles Ely, Zebulon; Med. Coll. of Va., 1913	1915	1916
Fox, Powell Graham, Raleigh; Med. Coll. of Va., 1922	1923	1929
Fox, Robert Eugene, Raleigh; Univ. of Pa., 1926	1926	1929
Freeman, Robert Herman, Raleigh; Jefferson, 1908	1908	1919
Gibson, Milton Reynolds (Hon.), Raleigh; Univ. of Md., 1905	1905	1906
**Glascock, Harold Winfield, Jr., Raleigh; N. Y. Univ., 1934	1934	1936
Goodwin, Oscar Sexton, Apex; Jefferson, 1923	1923	1926
**Hall, Edgar Milton, Jr., Raleigh; Univ. of Pa., 1938	1938	1941
Hamilton, John Homer, Raleigh; Harvard, 1916	1926	1926
Haywood, Hubert Benbury (Hon.), Raleigh; Univ. of Pa., 1909	1909	1910
Herring, Edward Humphrey, Raleigh; Univ. of Pa., 1930	1930	1934
Hester, Joseph Robert, Wendell; Univ. of N. C., 1910	1910	1911
Hill, Millard Daniel, Raleigh; Med. Coll. of Va., 1928	1928	1931
**Hitch, Joseph Martin, Raleigh; Univ. of Va., 1933	1938	1939
Horton, Miles Christopher (Hon.), Raleigh; Univ. Coll. of Med., Richmond, 1903	1911	1912
Horton, William Calvin (Hon.), Raleigh; Coll. of P. & S., Baltimore, 1897	1896	1904
Hunter, John Pullen, Cary; Jefferson, 1919	1919	1921
Jones, Carey Celester, Apex; Jefferson, 1920	1920	1923
Judd, Eugene Clarence (Hon.), Raleigh; Univ. of Pa., 1911	1911	1912
Judd, Glenn Ballentine, Varina; Vanderbilt, 1932	1934	1935
Judd, James M. (Hon.), Varina; Baltimore Med. Coll., 1897	1897	1901
Kitchin, Thurman D. (Hon.), Wake Forest; Jefferson, 1908	1908	1908
Knox, Joseph Clyde, Raleigh; Univ. of Md., 1924	1924	1932
Lane, Bessie Evans, Raleigh; Woman's Med. Coll. of Pa., 1921	1921	1926
Lawrence, Benjamin Jones, Raleigh; Jefferson, 1918	1918	1920
Liles, Lonnie Carl, Raleigh; Med. Coll. of Va., 1930	1930	1933
Mackie, George Carlyle, Wake Forest; Univ. of Pa., 1928	1928	1932
**McLeod, Neill Henry, Jr., Raleigh; Univ. of Pa., 1930	1930	1932
**McManus, Hugh Forrest, Jr., Raleigh; Med. Coll. of S. C., 1938	1938	1941
Mitchener, James Samuel, Raleigh; Johns Hopkins, 1915	1915	1917
Neal, Kemp Prather, Raleigh, Harvard, 1917	1920	1921
Noble, Robert Primrose (Hon.), Raleigh; Univ. of N. C., 1907	1907	1908
Oliver, Adlai Stevenson, Raleigh; Jefferson, 1914	1914	1919
Owen, John Fletcher, Raleigh; Jefferson, 1920	1920	1927
**Peasley, Elmus Day, Raleigh; Univ. of Iowa, 1927	1939	1940
**Peters, David Boteler, Raleigh; George Washington Univ., 1917	1920	1941
Powers, Frank Poydras, Raleigh; Univ. of Pa., 1927	1927	1928
Procter, Ivan Marriott, Raleigh; Univ. of Pa., 1915	1915	1917
**Rand, Emmett Gladstone, Raleigh; Univ. of Pa., 1926	1926	1929
Ray, Otis L. (Hon.), Raleigh; Univ. Coll. of Med., Richmond, 1899	1899	1904

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Name and Address	*Licensed*	*Joined State Society*
Reynolds, Carl Vernon (Hon.), Raleigh; Univ. of N. Y., 1895	1895	1896
Rhodes, John Sloan, Raleigh; Harvard, 1929	1929	1936
**Richie, Richard Frank, Raleigh; Univ. of Buffalo, 1927	1939	1940
Root, Aldert Smedes (Hon.), Raleigh; Univ. of Pa., 1911	1911	1913
**Royster, Chauncey Lake, Raleigh; Cornell, 1935	1935	1941
Royster, Hubert Ashley (Hon.), Raleigh; Univ. of Pa., 1894	1894	1895
**Ruark, Robert James, Raleigh; Univ. of Pa., 1931	1931	1934
**Sinclair, Lewis Gordon, Raleigh; Univ. of Pa., 1933	1933	1939
Smith, Sidney, Raleigh; Tulane, 1925	1925	1930
Stimpson, Robert Tula, Raleigh; Univ. of Pa., 1927	1927	1930
Strickland, Williard Milo, Wendell; Med. Coll. of Va., 1919	1921	1923
**Sykes, Ralph Judson, Raleigh; Med. Coll. of Va., 1934	1936	1936
Thompson, Hugh Alexander, Raleigh; Univ. of Pa., 1914	1914	1917
**Thompson, William Nelson, Raleigh; Boston Univ., 1939	1940	1940
Turner, Henry Gray, Raleigh; Univ. of Pa., 1906	1907	1910
Umphlet, Thomas Leonard, Raleigh; Univ. of Pa., 1934	1934	1939
Wall, Roger Irving, Raleigh; Tulane, 1934	1934	1937
**Ward, Wallace Clyde, Raleigh; Univ. of Louisville, 1931	1931	1934
Ward, William Titus, Raleigh; Univ. of Md., 1925	1925	1927
Watson, James, Raleigh; Northwestern, 1924	1940	1941
Weathers, Rupert Ryan, Knightdale; Med. Coll. of Va., 1926	1926	1928
Webb, Alexander, Jr., Raleigh; Harvard, 1937	1940	1941
West, Louis Nelson, Raleigh; Jefferson, 1912	1912	1915
Wilkerson, Annie Louise, Raleigh; Med. Coll. of Va., 1938	1938	1939
Wilkerson, Charles B. (Hon.), Raleigh; Univ. of N. C., 1906	1906	1908
Wilkinson, Robert Watson, Jr., Wake Forest; Tulane, 1922	1923	1924
**Williams, Charles Frederick, Raleigh; Jefferson, 1934	1934	1937
**Wilson, Frank, Jr., Raleigh; Univ. of Md., 1932	1932	1937
**Wright, James Rhodes, Raleigh; Univ. of Md., 1940	1940	1940
Wright, John Bryan (Hon.), Raleigh; Univ. Coll. of Med., Richmond, 1899	1899	1900
Yarborough, Frank Ray, Cary; Univ. of Pa., 1923	1925	1926
Young, Robert Foster, Raleigh; Emory, 1937	1939	1940
WARREN COUNTY SOCIETY		
President: Hunter, Frank Patterson, Warrenton; Univ. of Va., 1925	1925	1927
Secretary: Foster, Howitt H., Norlina; Jefferson, 1919	1919	1923
Peete, Charles Henry (Hon.), Warrenton; Univ. of Pa., 1903	1906	1906
Rodgers, William Daniel, Warrenton; Jefferson, 1913	1913	1915
WASHINGTON—SEE MARTIN-WASHINGTON-TYRRELL		
WATAUGA-ASHE COUNTIES SOCIETY		
Bunch, Charles Pardue, Sturgills; Duke, 1939	1941	1942
Hagaman, John Bartlett, Boone; Univ. of Tenn., 1915	1915	1917
**Harmon, Raymond Harris, Boone; Med. Coll. of Va., 1936	1936	1936
Jones, Arthur Lee, Jefferson; Univ. Coll. of Med., Richmond, 1901	1901	1941
Jones, Dean Cicero, Jefferson; Univ. of Pa., 1927	1930	1930
King, Robert Rogers, Boone; Univ. of Arkansas, 1906	1931	1932
Long, Lester Lee, West Jefferson; Lincoln Memorial Univ., 1916	1916	1934
Perry, Henry B., Boone; N. C. Med. Coll., 1905	1905	1922
WAYNE COUNTY SOCIETY		
President: Rose, David Jennings, Goldsboro; Tulane, 1922	1922	1924
Secretary: Clark, Milton Stephen, Goldsboro; Emory, 1937	1937	1939
**Benton, George R., Jr., Goldsboro; Univ. of Pa., 1934	1935	1938
Best, Deleon Edward, Goldsboro; Univ. of Md., 1924	1924	1926
Bizzell, Marcus Edward, Goldsboro; Tulane, 1923	1923	1925
Bizzell, Thomas Malcolm, Goldsboro; Univ. of Md., 1908	1908	1912
Brown, Clyde Russell, Goldsboro; Med. Coll. of S. C., 1934	1934	1937
Cobb, Donnell Borden, Goldsboro; Univ. of Pa., 1921	1921	1926
Cobb, William Henry (Hon.), Goldsboro; Jefferson, 1889	1889	1890
Dale, Grover Cleveland, Goldsboro; Univ. of Pa., 1925	1925	1927
Dowling, Judson Davie, Jr., Mt. Olive; George Washington Univ., 1940	1941	1942
Henderson, Clair Crouse, Mt. Olive; Univ. of Md., 1914	1914	1919
Hollowell, Claude Velmont, Goldsboro; Med. Coll. of Va., 1928	1928	1932
Howard, Corbett Etheridge, Goldsboro; Univ. of Pa., 1925	1925	1927
Irwin, Henderson, Eureka; Univ. of Md., 1912	1914	1916
Ivey, Henry B., Goldsboro; Univ. Coll. of Med., Richmond, 1911	1911	1917
Long, Ira Clinton, Goldsboro; Univ. of Md., 1923	1923	1937
McCuiston, Allen Masten, Mt. Olive; N. C. Med. Coll., 1911	1911	1917
McPheeters, Samuel Brown, Goldsboro; Washington Univ., 1906	1933	1934
Miller, Robert Bascom (Hon.), Goldsboro; Med. Coll. of Va., 1898	1900	1902

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Name and Address	*Licensed*	*Joined State Society*
Murphy, Robert Jennings, Jr., Morganton; Vanderbilt, 1940	1940	1942
**Pate, Archibald Hanes, Goldsboro; Duke, 1937	1939	1941
**Peele, James Clarendon, Goldsboro; Temple, 1936	1937	1942
Person, Edgar Cooper (Hon.), Pikeville; Med. Coll. of Va., 1905	1905	1908
Rand, Cecil Holmes, Fremont; Univ. of Pa., 1926	1926	1928
Richards, Milton Cardwell, Goldsboro; Med. Coll. of Va., 1937	1938	1943
Rose, James William, Pikeville; Tulane, 1928	1928	1931
Smith, William Carey, Goldsboro; Univ. of Md., 1936	1936	1938
Smith, William Hopton (Hon.), Goldsboro; Univ. of Pa., 1906	1907	1912
**Stenhouse, Henry Merritt, Goldsboro; Univ. of Colo., 1913	1937	1938
Strosnider, Charles Franklin (Hon.), Goldsboro; Univ. of Md., 1909	1910	1913
Sutton, William Gordon (Hon.), Seven Springs; Jefferson, 1889	1889	1904
**Tart, Baston Isaiah, Jr., Goldsboro; Temple, 1938	——	1942
Warrick, Luby Albert, Goldsboro; George Washington Univ., 1923	1923	1924
Whelpley, Frank Livingston, Goldsboro; Univ. of Missouri, 1902	1918	1919
Willis, William Henry, Goldsboro; Med. Coll. of Va., 1939	1939	1942
Woodard, Albert G. (Hon.), Goldsboro; Univ. of N. C., 1907	1907	1909
Zealy, Albert Hazel, Jr., Goldsboro; Harvard, 1930	1932	1934
WILKES-ALLEGHANY COUNTIES SOCIETY		
President: Smith, Harold Benjamin, North Wilkesboro; Med. Coll. of S. C., 1929	1929	1930
Secretary: Morris, John Watson, North Wilkesboro; Univ. of Va., 1936	1938	1938
Bentley, James Gordon, Pores Knob; Univ. of Louisville, 1911	1938	1939
**Bumgarner, John, North Wilkesboro; Med. Coll. of Va., 1939	1939	1940
**Bundy, William Lumsden, North Wilkesboro; Vanderbilt, 1936	1936	1940
Eller, Albert J. (Hon.), Wilkesboro; Coll. of P. & S., Baltimore, 1893	1895	1904
Gilreath, Frank Hackett (Hon.), Wilkesboro; Univ. of Nashville, 1898	1898	1898
Hubbard, Frederic Cecil, North Wilkesboro; Jefferson, 1918	1919	1924
Hutchins, Evan Marshall (Hon.), North Wilkesboro; N. C. Med. Coll., 1896	1896	1904
**McNeill, James Hubert, North Wilkesboro; George Washington Univ., 1926	1926	1927
Miles, Walter W., Champion; Univ. of Tenn., 1931	1933	1934
Mitchell, Gurney Talmage, Wilkesboro; Jefferson, 1927	1927	1928
Newton, William King, North Wilkesboro; Med. Coll. of Va., 1931	1932	1933
Phillips, Ernest Nicholas, Wilkesboro; Med. Coll. of Va., 1930	1930	1935
Sink, Charles Shelton (Hon.), North Wilkesboro; N. C. Med. Coll., 1912	1912	1913
Thompson, Clive Allen, Sparta; Med. Coll. of Va., 1924	1924	1936
Triplett, William Romulus, Purlear; N. C. Med. Coll., 1914	1915	1920
WILSON COUNTY SOCIETY		
President: Strickland, Arthur Thomas, Wilson; George Washington Univ., 1932	1932	1935
Secretary: Tillery, Jack Gregory, Wilson; Med. Coll. of Va., 1938	1938	1941
Anderson, Wade Hampton (Hon.), Wilson; Univ. of Va., 1902	1904	1904
Bell, George Erick, Wilson; Jefferson, 1921	1921	1922
Best, Henry Blount (Hon.), Wilson; Univ. of N. C., 1907	1907	1908
Blackshear, Thomas Joseph, Wilson; Emory, 1914	1923	1924
Bradshaw, Thomas Gavin, Wilson; Med. Coll. of Va., 1909	1924	1924
Clark, Badie Travis, Wilson; Univ. of Ga., 1930	1934	1935
Darden, Douglas Beaman, Stantonsburg; Univ. of Pa., 1921	1924	1925
Dickinson, Elijah Thomas (Hon.), Wilson; Med. Coll. of Va., 1895	1895	1900
Eagles, Charles Sidney, Saratoga; Univ. of N. C., 1909	1909	1910
Easom, Herman Franklin, Wilson; George Washington Univ., 1927	1927	1929
Fike, Ralph Llewellyn, Wilson; Med. Coll. of S. C., 1932	1933	1934
Goodwin, Cleon Walton, Wilson; Univ. of Pa., 1934	1934	1940
**Herring, Tilghman, Wilson; Johns Hopkins, 1938	1938	1941
Hunter, William Cooper, Wilson; Univ. of Pa., 1928	1928	1931
Kerr, Joseph T., Wilson; Jefferson, 1935	1935	1940
McLain, John Edward Gorsuch, Wilson; George Washington Univ., 1929	1941	1942
Mitchell, George William, Wilson; Univ. Coll. of Med., Richmond, 1913	1913	1914
Monroe, Daniel Geddie, Wilson; Jefferson, 1939	1939	1943
Moore, Kinchen Carl, Currituck; Univ. of Mich., 1909	1909	1910
Pittman, Malory Alfred, Wilson; Jefferson, 1921	1924	1927
Putney, Robert Hubbard, Elm City; Med. Coll. of Va., 1914	1914	1920
Saliba, Michael M. (Hon.), Wilson; Baltimore Med. Coll., 1897	1910	1910
Simons, Claude Ernest, Wilson; Med. Coll. of Va., 1930	1930	1935
**Sloan, William S., Wilson; Vanderbilt, 1933	1933	1935
Smith, Anderson Jones, Black Creek; Univ. of Pa., 1921	1921	1923
Strickland, Ernest Lee, Wilson; Med. Coll. of Va., 1916	1916	1917
Williams, Albert Franklin (Hon.), Wilson; Univ. of Md., 1901	1901	1904
Willis, Harry Clay, Wilson; Coll. of P. & S., Memphis, 1911	1916	1924
Woodard, Charles Augustus (Hon.), Wilson; Univ. of Va., 1904	1904	1909
YADKIN—SEE SURRY-YADKIN		
YANCEY—SEE MITCHELL-YANCEY		

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AUGUST, 1943

THE SULFONAMIDES AS PROPHYLACTICS

If the sulfonamides are endowed with powerfully curative properties in the treatment of many common and virulent infections, as experience abundantly proves that they are, the next logical step is to use them as preventives, and the literature is being constantly enriched with reports of the prophylactic use of this group of drugs. At the same time, however, numerous warnings are being published emphasizing the occasional toxic effects of the sulfonamides. This is not surprising; for, in addition to the existence of idiosyncrasies, it is a well-established therapeutic principle that the effective dose of any potent drug is very near the toxic dosage. Thus the physician must constantly steer a careful course between the hazard of the disease and the potential danger of the remedy, bearing in mind, however, the Hippocratic maxim that dangerous diseases require dangerous remedies. As a logical corollary, a dangerous remedy should not be used for a trivial ailment.

Fortunately, the toxic effects of the sulfonamides are well known and rarely serious, if proper precautions are observed, such as limiting the total amount of drug used and giving soda bicarbonate with every dose. The question of the production of *sensitivity* to the subsequent use of such compounds is under active investigation, the evidence at present being equivocal.

The common cold is the most prevalent of all infections, and probably the most disabling—not because of the primary virus infection of a few days' duration, but because of the secondary invasion of pyogenic bacteria. Since many of these very invaders are susceptible to the action of the sulfonamides, it would seem logical to attempt to prevent the invasion. The very nature of the problem renders it difficult to evaluate the effectiveness of sulfonamides used prophylactically in colds, and voices have been raised both for and against the practice. Probably here, as elsewhere, the motto of old Sir Thomas Browne, *festina lente*—make haste slowly—, is a sound admonition.

Experiences in other fields have been more definite. Thus Scott[1] reports that sulfaguanidine was "dramatically successful in every case" in controlling the spread of an epidemic of bacillary dysentery in an institution for the care of defective children, and Loveless and Denton[2], in a well-controlled group of Negro soldiers, found that sulfathiazole was a most effective preventive against gonorrhea and chancroid, causing "a phenomenal disappearance" of these diseases in the troops. Under their strictly supervised prophylactic treatment the gonorrhea rate dropped to a level of 8 per 1000, as compared with a rate of 171 per 1000 in the untreated control group.

The vast importance of such conclusions will be evident when it is recalled that the two greatest menaces to the health of our troops are venereal diseases and malaria. It is comforting to know that one of them can be defeated, although the other still remains the grim enemy number one of our soldiers.

1. Scott, J. C.: Prophylactic Use of Sulfaguanidine, J.A.M.A. 122:588-591 (June 26) 1943.
2. Loveless, J. A., and Denton, William: The Oral Use of Sulfathiazole as a Prophylaxis for Gonorrhea, J.A.M.A. 121:827 (March) 1943.

ANOTHER MEDICAL STUDENT SPEAKS HIS MIND

An editorial in last month's issue gave the reaction of a second year medical student at Harvard to the government's medical education program. The following quotation is part of a letter written by a first year student at Carolina to his parents. It says in no uncertain terms what this fine young man thinks of the program. If enough medical students share this view—and are not lured by the Siren Security onto the rocks of political medicine— American medicine may continue, in spite of our national socialists, to lead the world.

"Today it happened a complaining tax payer came forth with the statement that if he were paying for my education (and all other medical students), there should be some socialization of medicine after the war. If that idea becomes general, we are selling our souls in monthly installments. It seems to me that up to now the length of time and expense involved has served to safeguard the profession. People who had money enough to finance a medical education were (and are) likely to be people who know and can accept responsibility. People who had determination enough to borrow money to become doctors also are likely to be responsible people. The Government is taking this element out, and all that is needed now is a willingness to expend energy. I wonder what good can come from what is going on now. Maybe our Army experience will help prepare us for what is to come."

1. A Medical Student Looks at the Educational Program, North Carolina M. J. 1:263 (July) 1943.

* * * *

UNWANTED FREEDOMS

Four freedoms have been widely advertised to the world as having originated in the Atlantic Ocean. Two of these freedoms are positive—Freedom of Speech and Freedom of Religion or Faith. These two freedoms are sufficient for Victory. These two freedoms give the widening perspective and the far view.

Speech gives opportunity for discussion, study, deliberation and argument. It gives latitude to those who teach and those who listen. Faith is a precious quality that lends courage to the possessor. Faith is an important part of every religion. One may have faith without religion but one cannot have a religion without faith.

Freedom from want and freedom from fear are negative quantities. There is no glory in these freedoms. There is no particular virtue in them. They may be useful slogans for attracting political support, but they are weak arguments. They may just as well be left in the Atlantic for all the good they will do.

If one indulges in Freedom from Want, he does not strive, think, save, budget, study nor work. One will do all of these things to escape want. Then, why ask for freedom from want?

If one insists upon Freedom from Fear, he can then burn himself in his innocence and indulge in a confident future that planners are willing to arrange without guarantees.

There are two groupings of people who have freedom from want and freedom from fear and have security. Group 1—Those in asylums. They have security, food, bed, clothing. They have no liberty and no chance to move beyond their walls and fences. Group 2—Those in prisons and penitentiaries. They have freedom from want and fear. They have security and all of its implications. They are guarded in their security. They have no liberty.

Thus, those with no mind and no liberty have security.

Give me want and I will strive for my own security. Give me fear and I will fend for myself. Give me freedom of speech that I may be educated and acquire intelligence and wisdom enough to protect myself and my brother. Give me freedom of faith so that I may pray to be delivered from planners. I will make my own arrangements. The only arrangements willingly left to planners will be my funeral arrangements—for then I will be secure, settled and dead. —E.H.S., in the Kansas City M. J., v. 19, no. 3, p. 5 (May-June) 1943.

A NEW GROUP OF THERAPEUTIC AGENTS

Since the discovery by Fleming, in 1929, that one of the common fungi, Penicillium notatum, produces a potent anti-bacterial substance, penicillin, it has been found that other fungi and bacteria likewise produce bacteriostatic and bactericidal agents. Some of these substances, such as gramicidin and tyrocidin, have proven too toxic for general use, but penicillin has been purified to the point of very low toxicity[1] and, when it becomes available, will be a powerful supplement to the wonder-working sulfonamides.

The search for other non-toxic substances among this new group of extremely active inhibitors of bacterial growth has continued, and very recently Bush and Goth[2], of Vanderbilt University, reported the discovery of flavicin, produced by a mold of the Aspergillus flavus group. These authors find that flavicin is both bacteriostatic and, to some extent, bacteriocidal for a wide variety of pathogenic organisms. Like penicillin, flavicin inhibits strongly the gram-positive organisms, but it is also effective in high dilutions against dysentery, diphtheria and Brucella bacilli. Purified flavicin is reported to be non-toxic and very potent, though as yet it has not been subjected to clinical tests on human subjects.

There is urgent need for chemotherapeutic agents for the treatment of brucellosis and of actinomycetic infections in man, both dangerous and disabling diseases, and it is especially significant that flavicin has been found to be an active inhibitor *in vitro* of the growth of Brucella. It would seem that we are on the verge of therapeutic discoveries which may be as exciting as the sulfonamides have proven to be.

1. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, Lancet 244:387-396 (March 27) 1943.
2. Bush, M. T., and Goth, A.: Flavicin: An Antibacterial Substance Produced by an Aspergillus flavus, J. Pharmacol. and Exper. Therap. 78:164 (June) 1943.

DEALERS IN LIFE AND DEATH

Probably the most unpredictable instrument known to man is the human mind. Its vagaries run the gamut from unbelievable obtuseness to flashes of equally incredible brilliance; the history of medicine is filled with examples of both extremes. One is astonished, for example, that it required nearly two centuries for the medical mind to comprehend the circulation of the blood. On the other hand, gleams of pure genius have illuminated many seemingly impenetrable medical and surgical problems. Diseases causing great mortality, such as tuberculosis, diabetes and pernicious anemia—to mention only a few of many—have been in large part controlled by medical research, and the life expectancy of man has been correspondingly lengthened.

These remarks are preliminary to the consideration of a form of obtuseness exhibited by the management of our life insurance companies, which, though not unparalleled in business life, is nonetheless singularly astonishing. In these United States there are many so-called "foundations", which have been endowed by the wealthy, and these have been the chief patrons of medical research. Their interest has been purely altruistic. Not one of these foundations has been supported by life insurance companies, though it is obvious that these very companies are the first to profit by measures that prolong human life. When the expectancy of life is increased, it follows that the expectancy of death is postponed, and life insurance companies deal primarily in life and death.

So we are confronted with the remarkable fact that, although life insurance companies are most vitally interested in the saving of human life from the purely selfish motive of profit, they yet contribute nothing toward the researches without which medical progress is impossible! The sulfonamides alone have saved, and will save, the insurance companies billions of dollars, and it is highly probable, though not as immediately obvious as interest at 6 per cent, that one of these billions expended in support of medical research would prove far more profitable than railroad bonds. All of which leaves one filled with amazement at the incongruities of the poor old human mind!

BULLETIN BOARD

PRESIDENT'S MESSAGE

The World War and the general unrest have created many dictators, and Hitler and Mussolini are not the only ones. We have developed some dictators in our own America. No President ever had such supreme dictatorial powers as have been conferred on President Roosevelt and others in the administrative departments of our government. In order to promote the war effort this perhaps has been necessary. But why create a medical dictator to take over our lives and the medical profession after the war?

The Wagner-Murray Bill, S. 1161, has passed two readings in the Senate and has been referred to the Committee on Finance. No one can deny the tremendous financial cost of such a program as this bill proposes. Write your senators; get a copy of the bill; read it and you will be amazed at its socialistic plans and its enormous cost and burden to the future tax payers.

Several doctors have offered their services to talk before any county society or group desiring further discussion looking toward an understanding of the bill and a means of preventing its enactment. Write Secretary McMillan if you want help. Write to your representative in Congress; the bill now is before a Senate Committee, but it may reach the House in some form. Representative Cameron Morrison has said that he would give little hearing to what Chicago doctors might say about the bill, but that he would certainly like to know what the doctors of North Carolina think about it.

* * *

The Committee on Socialized Medicine and the Committee on Social Security of our State Society have been discontinued and a Committee on Planning and Policies has been appointed to serve in their place and to plan the policies of the Society in any field that may be necessary. Such a committee should be strong and capable and endowed with the gift of medical statesmanship. Dr. F. Webb Griffith will be chairman of this committee; Wingate M. Johnson, Roscoe D. McMillan, and Paul F. Whitaker are other members. One or two more may be added. A small, competent committee is thought to be more effective. Please let these men know what you are thinking at any time concerning the policies of the Society; and be ready to hear and discuss the report of this committee at the meeting of the House of Delegates next year.

JAMES W. VERNON, M.D.

NEWS NOTES FROM THE STATE BOARD OF HEALTH

Dr. Carl V. Reynolds, State Health Officer, has announced the appointment of J. M. Jarrett as director of the State Board of Health's Division of Sanitary Engineering, effective August 10. He succeeds Warren H. Booker, who recently retired, after serving in that capacity since 1931.

Mr. Jarrett, a native of Asheville, graduated from the Asheville High School and the North Carolina State College, as a civil engineer, in the class of 1926, with the degree of B.S. He has been with the United States Public Health Service as a sanitary engineer since November 14, 1942, on duty at Norfolk, with rank of Major. At Dr. Reynolds' request, he was relieved of his duties by Surgeon General Thomas Parran, in order to accept the vacant post with the State Board of Health.

* * * *

Two recent developments have given impetus to North Carolina's already nationally-recognized campaign for the eradication of venereal diseases. One was the announcement by Dr. Carl V. Reynolds, State Health Officer, that the Reynolds Foundation has had an additional grant of $25,000 to be used in establishing a closer administrative supervision over the program throughout the State; the other, the acceptance by the State Board of Health of the offer made through the Federal Works Agency for an allotment of $210,200 annually for the establishment in Charlotte of a hospital for the intensive treatment of venereal diseases in the early stages. The Board, at the same time, signed a lease with the Palace Realty Company of Charlotte, whereby the Charlotte Sanatorium, one of the best equipped hospitals in the State, is to be used for this purpose.

The new hospital will accommodate approximately 200 patients at one time, with an annual turnover of around 1,000. While it will be administered by the North Carolina State Board of Health, the United States Public Health Service will provide a chief medical officer, a chief nurse and a record analyst.

There are, at the present time, 309 public health clinics in North Carolina for the treatment of venereal diseases. These clinics hold 414 sessions weekly. As an example of what is being done in these clinics reports show that during the year 1942 there was an average monthly case load of 24,238 patients under treatment for syphilis, while the total number of treatments given was 804,827. During the year, there were 20,833 new cases admitted to the clinics, and 4,538 were discharged as completely cured.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA

Dr. William deB. MacNider, of the Pharmacology Department, was recently elected to Associate Foreign Membership in the British Physiological Society.

* * * *

Dr. G. L. Donnelly, of the Department of Pharmacology, has resigned from this School, effective September 1, 1943, to go into private practice in Valdese, North Carolina.

Seventy-eight graduate nurses from seven states completed the three weeks' intensive course in "The Public Health Nurse in a Maternal Health Program" which was conducted by the Department of Public Health Nursing of the School of Public Health, University of North Carolina, in June. The course was under the direction of Miss Margaret Blee, Assistant Professor of Maternal and Child Hygiene, and was sponsored by the Division of Maternal and Child Health Services of which Dr. G. M. Cooper is Director. Miss Louise Zetzsche, Maternity Nursing Supervisor, The Visiting Nurse Association of Denver, Colorado, was the guest instructor, and special lectures were given by Dr. Ethel C. Dunham, Consultant in Pediatrics, Children's Bureau, Dr. F. Bayard Carter, Professor of Obstetrics and Gynecology, School of Medicine, Duke University, and Miss Laura Blackburn, Nurse Midwife Consultant, South Carolina State Board of Health.

* * * *

The North Carolina Water Works Operators Association held its annual Short School at the University of North Carolina, July 26-31. This group combined with the students of the Course in "Chemistry of Water Purification" given this summer by the Department of Sanitary Engineering, School of Public Health, and a number of water purification and sewage treatment plant operators from various army bases in the Fourth Service Command.

The program included lectures, laboratory sessions and demonstrations, examinations for the Grade "A", "B", and "C" Water Works Operators Certificate, and a trip to the water purification and sewage treatment plants at Camp Butner, Durham, N. C. Among those who took part in the program were Col. M. J. Blew of the Sanitary Corps, Capt. E. A. Lund and Dr. Gerard A. Rohlich of the U. S. Army Corps of Engineers, Mr. F. E. DeMartini, U.S. Public Health Service, and Mr. W. W. Brush, editor of the magazine, "Water Works Engineering".

News Notes From the North Carolina Tuberculosis Association

The Forsyth County Tuberculosis Association under the able direction of its executive secretary, Mrs. C. O. DeLaney, is setting up a Registry for all tuberculosis cases in the county. This is a coordinated project of the health departments in Forsyth county and the tuberculosis association. It will enable health officers, private physicians and the county sanatorium directors to know at all times how many persons in the community have tuberculosis, who they are, where they live, the stage of their disease and the treatment being given. This over-all picture will be a big factor in the control of the disease. Miss Mary Dempsey, statistician for the National Tuberculosis Association and her assistant, Miss Jones, have been in Winston-Salem and are acting as consultants in this project. There are a number of such registries in New York State but when Forsyth County register becomes active, it will be a pioneer in this section of the country and will be used as a demonstration in the Southern Area.

Mecklenburg County Medical Society

The Mecklenburg County Medical Society held a dinner meeting at the Charlotte Hotel on June 1, preceded by a social hour in the Medical Library. Approximately one hundred physicians, including more than forty out-of-town guests, were present. The guest speaker was Dr. Tinsley Harrison of the Bowman Gray School of Medicine, who spoke on "Cardiac Flutter". Resolutions on the death of Dr. William Allan were adopted at this meeting.

Catawba Valley Medical Society

The Catawba Valley Medical Society met at Grace Hospital in Morganton on July 30 at 8:00 P.M.

The program opened with a paper entitled "Common Mistakes in Obstetrics," by Dr. J. S. Lewis, of Hickory.

Following this, there was a program devoted to cancer control, with particular reference to the proposed establishment at Grace Hospital in Morganton of a Tumor Clinic. A motion picture, "Choose to Live", was shown by Mrs. George E. Marshall, State Commander of the Woman's Field Army, who also made a short talk. Dr. J. W. Vernon, President of the State Medical Society, discussed the proposed professional organization of the Clinic. Surgical and radiation aspects of the proposed Clinic were discused by Drs. Yates Palmer of Valdese and L. W. Oehlbeck of Morganton. Financial aspects were discussed by Mr. S. K. Hunt, Administrator of Grace Hospital.

Refresher Course

The two-day "refresher course" for practitioners, inaugurated last year by the Medical College of the State of South Carolina, will be repeated this year on November 3 and 4 at Charleston. The following speakers have accepted the invitation to participate in this course.

Dr. Leroy Gardner, Director, Trudeau Foundation of the Saranac Laboratory for the study of Tuberculosis, Saranac, New York.

Dr. Alfred Blalock, Professor of Surgery, Johns Hopkins University.

Dr. Roy Kracke, Professor and Chairman of the Department of Bacteriology, Pathology, and Laboratory Diagnosis, Emory University, Atlanta, Georgia.

Dr. Charles Christian Wolfert, Professor of Clinical Medicine, University of Pennsylvania.

Dr. Virgil Preston Willis Sydenstricker, Professor of Medicine, University of Georgia.

Colonel John Theodore King, Chief of the Medical Clinic at Walter Reed Hospital, Washington, D.C.

Dr. Harrison F. Flippin, Department of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.

Dr. George W. Thorn, Hersey Professor of the Theory and Practice of Physic, Harvard University, Boston, Massachusetts.

Each speaker will give a morning clinic or lecture and conduct a round-table discussion in the afternoon. A Pathological Conference will be held on both afternoons.

Founder's Day Speaker at the Banquet on the evening of November 4, 1943, will be Dr. Henry Meleney, Chairman of Committee on Teaching of Tropical Medicine of the Association of American Medical Colleges.

News Notes

Dr. Tom A. Williams, formerly consulting neurologist of Washington, D. C., who has been practicing in Italy since 1932, has been licensed to practice in North Carolina, and is living in Asheville, where he has been appointed psychiatrist to the guidance clinic.

During the past eighteen months Dr. Williams has been Advisor in Mental Hygiene to the State Health Department of Louisiana, during which period he also lectured in Texas for the Hogg Foundation of the University of Texas, both to the Medical School in Galveston and to lay audiences.

During the last war Dr. Williams was in France as neuropsychiatrist to the Department of Intelligence and Research.

AUXILIARY

A MESSAGE FROM THE PRESIDENT

As your leader for this year, I pledge my best efforts and extend to every doctor's wife from the mountains to the sea a sincere greeting. I am depending on each of you to make this year a success, but without you our effort availeth nothing.

We face a difficult year, but times like these present a better opportunity for the exercise of our talents. It is up to us on the home front to do the best job we possibly can, and that for us is with medical and health interests. No matter what demands are made on us, our first job is to our husbands and their profession.

Are you not proud to be a part of a group that is serving so courageously on the battlefield and the home field? No other group that is serving has answered the call of battle and of service as have our doctors. There are already over 40,000 physicians serving in our army and navy. When the call came, North Carolina more than furnished her quota immediately. Thousands of others are in full-time service at home. I should like to pay tribute to the courage shown by the wives of doctors whose homes have been disrupted and family ties severed. They are a part of our great "Woman's Army", and can still smile.

Would it not be a splendid compliment to our husbands if the wife of every doctor licensed to practice in our state would join with us in forming a stronger and more united organization? In attaining this, there are two important things for our women to do:

1. *Join the Auxiliary.*

   Get in touch with your Councilor and pay your $1.00 dues at once, thus showing your interest in the organization. Mrs. R. A. Moore, our most capable president of last year, brought the number of organized county auxiliaries to eighteen. Now, she is planning with the Councilors of the ten districts the expansion of organization. Will you not be one to help her in this?

2. *Be Informed.*

   Every Auxiliary member should be informed concerning the aims and purposes of the Medical Society, and the Auxiliary. Dr. Fishbein once said, "Doctors' wives should know what is goin on. A wife is not a first class doctor wife unless she knows about the progres being made in medicine."

After learning the various phases of ou work you will find such a variety that yo can choose an interest best suited to yo Then, as our work grows and is accon plished, you will be able to say, "I have ha a part in this."

From our Program Chairman, Mrs. Josep Elliott, Charlotte, instructive materials ma be secured pertaining to Health Defense an state and national projects. Very worth while information may be found in *Hygeia* the *Bulletin* of the National Auxiliary, Hand book for State Auxiliaries, the NORTH CARO LINA MEDICAL JOURNAL (particularly th editorial and auxiliary pages), the *Journa of the American Medical Association,* an the Transactions of the State and Nationa Auxiliaries.

We shall endeavor to carry out the sam projects of past years as outlined by both the State and the National Auxiliaries. A the Executive Board meeting held in Ra leigh, a new chairmanship was authorized to be known as "Medical Officers' Wives" This committee is to aid in any way possible the wives of physicians who are stationed in our state for the duration.

In National Defense, with which we are so closely allied, we are cooperating 100 per cent, and pledge our willingness to aid this wherever work is to be done.

Like a mother among her several children we have no favorites among our projects, but close to our hearts are the McCain Bed at Sanatorium and the Stevens Bed at Black Mountain. We are privileged to have a young doctor occupy our McCain Bed at this time, and are delighted with her progress. The Stevens Bed is taking care of a young nurse, and she too has improved. Is this not a wonderful challenge to every doctor's wife in our state—to raise money toward our $10,000 endowment fund in order that our bed may be assured? What could be more worth while than helping some one regain health so that he can help himself? Our Student Loan Fund is growing, thus enabling some son or daughter of a doctor less fortunate in material goods to gain an education.

May I commend to you the members of the Executive Board and chairmen of the standing committees. They have accepted

each job in a gracious spirit of service, and when they ask you for aid, please compensate them by trying. Your State officers desire to be of service to you. Every year of our Auxiliary's work has shown progress, and though the clouds hang low over us at this time, I feel confident that our progress will continue. We must help preserve the high ideals and principles which have made possible the great accomplishments of American Medicine. To do this, our women must join the Auxiliary and become informed.

With your prayers, your help, and your constructive criticism, we will not falter.

May I close with the tribute to our doctors by Robert Louis Stevenson: "So long as we love we serve; so long as we are loved by others I would almost say that we are indispensable. The true services of life are inestimable in money, and are never paid."

LIDA TAYLOR PACE

AUXILIARY MEMORANDUM

National Headquarters in Chicago has asked for a list of all doctors' wives who have left our state to be with their husbands who are in the armed services. If any from your town or community have gone, please send names to Mrs. G. G. Dixon, Ayden.

* * *

Please send any interesting clippings pertaining to Auxiliary work to your Scrapbook Chairman, Mrs. Ben Royal, Morehead City.

* * *

Subscribe to the *Bulletin*. Send $1.00 to our *Bulletin* Chairman, Mrs. Ben Kendall, Shelby. From this you gain a real vision and a broader scope of our work.

In Memoriam

WILLIAM ALLAN, M.D.

Resolutions Adopted at a Regular Meeting of the Mecklenburg County Medical Society June 1, 1943
Drawn up by Oren Moore, M.D., Robert F. Leinbach, M.D., and J. M. Northington, M.D.

At the Baptist Hospital at Winston-Salem, on the twenty-fourth of April, died William Allan, Doctor of Medicine.

North Carolina has had her full share of able curers of disease. She has had many scholarly doctors. Of men of importance in research in medicine she has had quite a few.

Her one doctor eminent in all these fields was William Allan.

Son of Colonel William Allan, distinguished alike as soldier and teacher, and of Elizabeth Randolph Preston Allan; brought up in the stimulating mental atmosphere of Lexington, Virgina; completing his classical education at Washington and Lee University—it would have been strange had not William Allan's contribution to knowledge been exceptional.

After graduation from the Medical School of the University of Maryland, he took special work in pediatrics and came to Charlotte some thirty-five years ago to establish himself in practice. Immediately he was made a member of the faculty of the North Carolina Medical College; because of the dearth of men well trained in laboratory medicine, he was assigned this subject. Often he was heard to refer to pediatrics as general practice with an age limit. No one gained the impression that he meant this in any derogation of either the pediatrician or the general practitioner; but only as his way of saying that active practice in that line left no time for research work on which he was firmly resolved and for which he was splendidly equipped. So he went into internal medicine, the broadest of the specialties, in which he soon began building the reputation which was to make him the foremost medical consultant of this section; and his original studies in blood diseases and parasitology, in some of which the late Dr. Harvey P. Barrett collaborated, soon made his name widely famous.

With the coming on of the First World War, Dr. Allan was one of the first to volunteer for military service. Sent to France as an officer of Hospital Unit "O", its personnel chosen largely from Charlotte and its vicinity, he served till the close of the war with the combined Hospital Unit "O" and Massachusetts General Hospital Unit and was discharged with the rank of Major.

Returning to Charlotte, he took up where he had left off and vigorously prosecuted his consultative and research work, the latter now mostly in the field of heredity. Up to now his researches had been of his own financing. After a while their value was realized and recognized to the extent of his being awarded certain funds which helped materially in enlarging the scope of his studies.

During a great part of this period Dr. Allan suffered from a progressively crippling arthritis, and it seemed as though he might soon be obliged to retire entirely from clinical medicine.

The coming into being of the Bowman Gray School of Medicine, and this school's recognition of the importance of the subject which had so long enlisted Dr. Allan's interest, and in which he had become recognized the nation over as an authority, brought him the offer of the Chair of Medical Genetics in this new medical school. The opportunity and the man had met, and Professor Allan entered on his new duties with enthusiasm. He had thoroughly organized his course; his students had learned, as had all doctors who attended medical meetings in this section for a third of a century, of his talents as a teacher; and his lecture room was crowded.

Scarce three months after entering on his professional duties he lay dead.

Resolved:

That in the death of William Allan North Carolina has lost her foremost doctor;

That this Society, in its great loss, holds him in memory as an exemplar of all that is best in the profession of Medicine; and

That a copy of this tribute be mailed to Mrs. Allan and one to each newspaper of Richmond, Lexington, Winston-Salem and Charlotte.

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NORTH CAROLINA MEDICAL JOURNAL

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ONE-STAGE, COMBINED ABDOMINOPERINEAL RESECTION: PROBLEMS CONCERNED WITH SELECTING PATIENTS AND PERFORMING THE OPERATION

LIEUTENANT COLONEL CHARLES W. MAYO
Medical Corps, Army of the United States

This discussion will be concerned with malignant growth in the lower part of the sigmoid, in the rectosigmoid and in the rectum. It will be assumed that vague or definite symptoms of intestinal disturbance have been elicited by carefully taking the history, which has justified equally careful examination from below by finger, proctoscope and sigmoidoscope after proper preparation, and that the diagnosis of neoplasm has been made and the location of the growth within the lower part of the bowel has been ascertained.

It might be well to make a general statement at the outset: Within limits, neoplasms of all sizes and locations, and of all grades of malignancy are found in the colon just as in other parts of the body. If a growth is in the gastro-intestinal tract it must be at or near either end of the structure for definite knowledge of its size, location and grade to be obtained preoperatively and to enter into the decision as to the treatment that should be employed. For information regarding the intervening portion of the intestinal tract I depend for the most part on the radiographic evidence.

At this time the picture will not be complicated by theoretical considerations of the etiology of malignancy. No sooner does one determine that the stimulus to malignant growth is principally traumatic, thermal, chemical or inherent than the inexplicable case appears. Unquestionably there is some relationship between polyps and malignancy. A benign polyp may exist all of an individual's natural life and never become malignant. All polyps, on the other hand, particularly those in the colon or rectum of man, are potentially malignant and should either be carefully and frequently examined by a competent physician, even though they are grossly or symptomatically benign, or better still, should be completely removed by fulguration or surgical operation. The removal of a benign polyp may prevent eventual radical surgical measures or palliative colostomy.

Helwig[1], as well as Cromar and others before him, has shown that approximately 44 per cent of benign polyps of the large bowel occur in the sigmoid and rectum. While Helwig was not concerned with malignancy, it is in these areas, as is well known, that the majority of malignant growths of the colon occur. Those whose particular field of surgery concerns the colon cannot but be impressed by the relationship between the benign polyp and the development of carcinoma.

Once malignant change begins in a polyp, the rapidity with which it metastasizes will depend on the type of polyp and on the grade of malignancy. Pedunculated polyps tend to progress slowly and, generally speaking, malignancy within them is of a lower grade

Read before the Second General Session, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

1. Helwig, E. B.: Benign Tumors of the Large Intestine: Incidence and Distribution, Surg., Gynec. & Obst. 76:419-426 (April) 1943.

than that within sessile, or flat based, polyps. These latter undergo ulceration more rapidly and are more likely to be the site of neoplasms of a high grade of malignancy; as has been demonstrated often, these neoplasms may spread distantly and massively while the primary lesion still may be no larger than a ten cent piece.

The grade of malignancy alone is not the deciding factor in distant metastasis; for occasionally a small lesion of grade 1 is seen with glandular and hepatic metastasis so extensive that even a palliative surgical opation is unjustified.

Selection, for radical resection, of the patient who has a malignant growth in one of the regions under discussion rests primarily on an estimation of all the known and, as best one can, of the unknown factors that are concerned in determining the risks involved and the immediate and ultimate results to be obtained.

Ability to evaluate risks comes primarily not from reading but, rather, from experience. All the surgeon really knows is that, given certain constitutional factors, whether they are coexisting primary pathologic processes or secondary to the malignancy of the colon, the risk of a major surgical procedure will be increased. The degree of risk depends on the degree to which the unfavorable constitutional factor or factors can be corrected preoperatively. In building up a patient's reserve, obstruction, debility, dehydration and anemia are among the more common problems for which solution must be sought.

Relative to local considerations of the neoplastic growth itself this may be said: Fixation may be so extensive that, beyond any doubt, no surgical measure is advisable, or only a minor palliative procedure is indicated. If contraindications are not so definite as this, however, the patient should be so prepared preoperatively, and the incision at operation should be so made that, if intra-abdominal exploration justifies one-stage combined abdominoperineal resection, in spite of adverse preoperative opinion, it can be done without loss of time. Without such foresight, the surgeon might be forced to employ a less efficient operative solution.

In determining the degree of fixation of a growth in the lower part of the colon or in the rectum, the examiner enjoys a considerable advantage if the growth is within easy reach of the finger. If a fixed growth is found, it is important that the examination be carried out in a variety of positions (knee-chest, lithotomy and Sims), for although fixation may seem to be marked when the patient is in one position, when he is in another, sufficient motion may be elicited to justify a planned resection.

The surgeon's choice of a particular surgical method in the treatment of any given lesion is based on a consideration of the results which he has achieved with various procedures. If his experience in this field has been limited and the occasion arises that he must do his best, then he is influenced in his selection of method by what he has read and what he has been told. The risks involved in surgical intervention under such circumstances can at least be reduced by following a method which appeals as a logical answer to the problems of the individual case.

As my own interests in the field of surgery have been largely concentrated on the colon, I have used many surgical approaches for lesions in the lower part of the sigmoid, colon and rectum. It is now my considered opinion that in dealing with a resectable neoplasm in these regions, even in the presence of small metastatic growths in the liver, a well carried out combined abdominoperineal resection in one stage is the operation of choice from the standpoint of both the immediate and the late operative results. In my experience a resection has been possible in almost 75 per cent of the patients operated on, and during the last four years I have done only one colostomy, followed later by posterior resection, and only two two-stage combined abdominoperineal resections.

Up to January 1, 1943, on my service at the Mayo Clinic, the one-stage combined procedure has been done 296 times with 18 deaths, counting all deaths from all causes regardless of the time in the hospital — a mortality rate of 6.08 per cent. In the last 191 cases of this series the mortality rate dropped to 1.5 per cent, with 3 deaths.

It is to present the details of the surgical method used in this last group of cases that this report is made.

Anesthesia

The type of anesthesia which has been used in the vast majority of cases on my service for this operation has been a combi-

nation of spinal anesthesia with procaine hydrochloride or benzoyl-gamma-(2-methyl-piperidino)-propanol hydrochloride (metycaine) and intravenous anesthesia with pentothal sodium. In a few cases exceptions to this procedure, which were determined by the judgment of the anesthetist, have been made. Thus the principle is employed that the anesthetic agent to use in any case is that with which the anesthetist is most familiar and which is best suited to the individual case.

In my opinion, timing is important in the combining of spinal and intravenous anesthesia. The use of any factor in combined anesthesia should not be delayed until the effect of the first factor used gives evidence of wearing off. On my service the patient is additionally anesthetized by the intravenous technique approximately at the time the abdominal incision is made, and this form of anesthesia is continued until the posterior resection has been completed.

The dosage of the spinal anesthetic agent is the same as that which would be used if combined anesthesia were not contemplated. The dosage of pentothal sodium will vary, depending on the response of the individual patient. Oxygen of high concentration can be administered by the inhalation mask, with apparent benefit.

A more detailed discussion of the subject of combined spinal and intravenous anesthesia for operations on the colon has been published elsewhere[2].

Supportive Measures During Operation

Additional supportive measures may be indicated during the course of the actual operation, such as those required because of an unusual decrease or increase in the patient's blood pressure or an unusual loss of blood; these measures should be carried out immediately, and not postoperatively. Frequently, solutions of sodium chloride or of glucose are administered intravenously, and, more occasionally, transfusions of blood are given at the time the patient is on the operating table.

Operative Method

An essential to the performance of any operation is a thorough understanding on the part of the surgical team of the details of that operative method, from the time the patient is placed on the operating table until he is moved off. This will eliminate unnecessary and even hazardous motions and loss of valuable time and will make for efficiency and safety.

I will describe a method of one-stage combined abdominoperineal resection which has given good results.

The abdominal incision: A low abdominal incision is made approximately 1 inch (2.5 cm.) from the midline, through the anterior fascia of the left rectus muscle, and the muscle is retracted laterally. This incision is selected because it interferes least with the blood and nerve supply to that muscle, and because experience has proved that it is a good one through which to work in order to complete the operation in one stage, to prepare for a two-stage combined abdominoperineal resection, or to create a permanent type of colonic stoma.

Exploration: The purpose of examination of the abdominal cavity is to determine whether it is feasible and justifiable to perform the operation in one stage. Gross evidence of distant metastasis, particularly in the lobe of the liver, is searched for; the abdominal portion of colon should be palpated carefully, with the realization that in 5 per cent of cases of malignant processes of the colon multiple lesions occur; fixation of the lesion itself is estimated. The combination of observations determines whether or not one-stage combined abdominoperineal resection should be attempted. There are, of course, all degrees of indications in the observations and, as time goes on and experience accumulates, the surgeon is tempted to assume greater and greater risks. A small degree of metastasis to the liver with a primary movable lesion of the rectosigmoid, for instance, would not necessarily contraindicate the operation; nor would obesity, or a movable, additional, small, nonobstructing lesion in the transverse colon or splenic flexure.

Operation: If the decision is made to proceed with the surgical maneuver planned on, the incision is enlarged to an adequate size. It is a mistake to work through too small an incision. Dr. William J. Mayo used to say that it was well to remember that an incision heals from side to side, not from end to end.

2. Anderson, B. M., Mousel, L. H., and Mayo, C. W.: Combined Spinal and Intravenous Anesthesia for Operations on the Colon, Surg., Gynec. & Obst. 75:651-656 (Nov.) 1942.

The next step is to examine the sigmoid carefully, principally to decide at which point colostomy should be performed. The site of the colostomy depends on the mobility of the colon and mainly on the amount of redundancy. Colostomy is not to be standardized: a point in the incision will be found where the portion of bowel to be exteriorized will come out easily, and it should be so planned that, if possible, about 3 inches (about 8 cm.) of colon will protrude beyond the margin of the skin. Furthermore, the site in the bowel should be so selected that there will be little redundant bowel proximal to the colonic stoma. In this way prolapse at a later time will be avoided.

When the site in the sigmoid colon has been selected for colostomy, a rubber tube is run through the mesosigmoid next to the bowel and then, with the patient in the Trendelenburg position, the small intestine is packed away from the region of dissection.

Dissection of the lower segment of colon is begun just below the rubber tube which has been placed at the point selected for colostomy. The peritoneal covering of the mesosigmoid is peeled back and the branches of the sigmoid vessels are exposed; these branches are ligated. This procedure is continued until clamps can be applied high on the superior hemorrhoidal artery. Usually, the site for application of the clamps will be 3 to 4 inches (about 8 to 10 cm.) above the promontory of the sacrum. Because the pelvic peritoneum must be closed later in the operation, it is important to preserve as much healthy peritoneum as possible during these first steps. The right ureter is easily avoided; the left, particularly in obese patients, must be more carefully protected because the left position of the mesosigmoid makes it more vulnerable than the right ureter.

Up to this point, the dissection has been carried out above the rectum, posteriorly and bilaterally. If rectal dissection is next carried out posteriorly to the tip of the coccyx and laterally through the anterior approach, as well as is possible in the individual case, later dissection through the perineum will be more easily accomplished because of the increased mobility. Long scissors are a distinct advantage. The lines of cleavage of the fascial planes should be followed and the surgeon should keep ever before him the objective, which is to stay well away from the involved tissues. This part of the dissection will be different in each case. An effort should be made to accomplish as much of the rectal dissection from above as possible, for this technique will facilitate the work posteriorly; however, when as much as can be done has been done, the surgeon should not keep trying to do more.

Next, attention is directed toward placement of the colonic stoma. The proximal portion of sigmoid is pulled up and the point in the incision through which the bowel will pass most naturally is marked. Here the subcutaneous fat is pushed laterally from the fascia of the anterior portion of the rectus muscle, the muscle is then separated from the anterior and posterior portions of the fascia at the point where the fascia is to be cut transversely, and the left rectus muscle is separated with curved forceps in such a manner as to leave about 1 inch (2.5 cm.) of muscle on the mesial side. The fascia is cut thus in order to prevent strangulation of that portion of bowel which is to form the colonic stoma.

Long Payr clamps are slid through the split in the left rectus muscle and are applied at the desired point on the sigmoid. A smaller Payr clamp is placed on the lower part of the sigmoid, the bowel having been elevated in such a manner as to allow removal of any redundant portion. It is important to leave no more bowel to be placed in the dissected rectal space of the sacrum than necessary. The sigmoid is severed between the clamps.

The next step is to close the distal stump of sigmoid. Closure is accomplished by an over-and-over stitch across the closed Payr clamps. By withdrawal of the clamp, as the suture is pulled, the crushed portion is inverted. The lower segment of the colon is now placed deep under the pelvic floor and the peritoneal edges are brought together with double strands of no. 1 chromic catgut. Suturing begins at the base of the bladder in the male and at the base of the uterus in the female (if she has not been divested of this organ) and is continued to the point at which the mesentery of the sigmoid is to penetrate the posterior rectus fascia. There the sutures are locked.

At this stage decision is made for or against closure of the lateral space between the site of colostomy and the abdominal wall.

The rules which I follow are: (1) Close small openings and leave large ones open, and (2) close nothing under tension. Actually, I close only a small percentage of openings. Having either closed the aforementioned space or left it open, I now continue, with the suture with which the new pelvic floor has been approximated, to close that portion of the abdominal incision lying below the colonic stoma.

The abdominal pack is removed next. The patient is then moved from the Trendelenburg position into the horizontal position, and the upper portion of the abdominal incision is closed. Care is taken not to close the incision too tightly around the colonic stoma; a finger should slip in easily between the bowel and the fascia.

After closure of the skin has been carried out, a fishline purse-string suture is placed just below the Payr clamp on the single-barrel colonic stoma; the clamp is removed and a rectal tube is placed about ½ inch (about 1 cm.) into the lumen of the bowel, and is fixed in place. It is most important to be certain that the tube does not extend below the margins of the skin. Edema and swelling may sever the bowel between the fascia and the rubber tube, if the tube should be allowed to go in too far.

The anterior wound is then dressed so as to avoid pressure on the extruding colonic stoma, and the patient is carefully placed in the lithotomy position.

The buttocks and anus are cleansed and a purse-string suture of fishline is placed about the anus to prevent leakage. A triangular incision is next made, the base being up and the apex being at the tip of the coccyx. The size of the triangle will depend on the situation of the malignant lesion; for those situated high it need not be as large as for those situated low. The coccyx need not be removed. I have never removed it in this operation and I know of no case in which it had to be removed later on.

If dissection has been carried out from above, as would be preferred, posterior resection is comparatively simple, infrequently requiring more than ten to fifteen minutes for completion. Bleeding points then are caught and ligated, and after the posterior cavity has been swabbed with tincture of sodium ethylmercurithiosalicylate (merthiolate) and 75 grains (5 Gm.) of sulfanilamide crystals have been placed in it, a rubber composition sheet (pliofilm) is placed over the opening and a long gauze strip is packed snugly into the cavity for a twofold purpose: (1) to control bleeding and (2) to support the new pelvic floor against immediate stress and strain.

The posterior pack is left in place for four days and the single stitch that has kept it in place is then removed and the pack is gently pulled out, care being taken not to create suction by removing it like a cork. Very little, if any, sedation is required for removal of the posterior pack.

Postoperative Care

Postoperative care can be divided roughly into two important parts: (1) general supportive measures and (2) local care to the wounds. It is understood without elaboration that competent nurses must have a thorough understanding of the nature of the operation and of the details of carrying out postoperative orders, for in their heads and hands much of the responsibility lies.

General Measures

Transfusion of blood: All patients, regardless of how well they may have tolerated the actual surgical procedure, receive 500 cc. of whole blood by transfusion. If there is any question as to whether more blood is needed, the element of doubt alone is taken as an indication that it is, and 1,000, instead of 500 cc. of blood is given. It is well to state here that preoperatively the blood of the patient should be typed, as should also that of the relatives, as potential donors.

Oxygen: All patients receive postoperatively high concentrations of oxygen, either in the oxygen tent, where the concentration is kept in the vicinity of 50 per cent, or by means of the B.L.B. mask (nasal or oronasal, as indicated), in which the concentration approaches 100 per cent. The minimal duration of administration is twenty-four hours, but oxygen can be given for longer periods, if it is indicated.

Activity: At the clinic we like to keep our patients moving in bed and to have them up and out of bed at the earliest opportunity. The magnitude of the operation is too likely to be taken as an indication for prolonged rest in bed. Unless it is contraindicated—and it rarely is—our patients "dangle" (swing the feet off the side of the bed and remain in a sitting position for a short time) on the morning and afternoon of the ninth

postoperative day, and get out of bed on the tenth day, at which time daily sitz baths are begun. Between 80 and 85 per cent of patients can be up and out of the hospital in less than three weeks after the operation. They should not be permitted to make invalids of themselves.

Mental attitude: It is the obligation of the physicians and nurses in attendance to aid, by every means possible, in the patient's adjustment to a permanent colonic stoma. The patient's natural tendency is to think only of the bad features of a colonic stoma and the probable limitations in habits of living which will ensue.

Care of the abdominal and posterior wounds

Abdominal wound: Strict adherence to certain principles will have much to do with what may be termed a "good" abdominal wound.

First, it should be kept unsoiled by fecal material for as long as possible. The rectal tube tied in the lumen of the colonic stoma, as previously described, aids in this.

Second, when soiling finally becomes unavoidable, fecal material must not be allowed to remain in contact with the wound. Close attention by a nurse is a requisite, and frequent exposure of the wound under a cradle, with or without the application of dry heat, is mandatory.

Third, undue pressure must not be exerted on the colonic stoma. It should be dressed with a doughnut type of dressing, about the protruding portion of bowel.

Posterior wound: The posterior wound is left practically undisturbed until the fourth postoperative day, at which time the pack is removed. Our efforts are bent toward keeping the outer part of the wound wide open by daily examination with the sterile-gloved finger, so as to avoid pocketing deep in the wound. Slight "spiking" of the temperature postoperatively from about the eighth day on frequently will be caused by walled off pockets in the posterior wound.

Cleanliness and stimulation of clear granulation tissue are achieved by irrigation, twice daily, with an 0.8 per cent solution of sulfanilamide, alternating with a quarter-strength solution of hydrogen peroxide, and also by daily sitz baths, from the tenth day on, when the patient is out of bed. The vast majority of these patients can sit with surprising comfort from this time on, and by the sixth week the posterior wound generally is well on toward complete healing.

Our aim in dealing with the posterior wound is to allow it to heal cleanly from within outward.

Prognosis

The late results of one-stage combined abdominoperineal resection must be evaluated if one is to have a thorough understanding of what the operation offers.

If a surgeon has not personally had a sufficient number of cases over a sufficient number of years, and if the means of follow-up are not adequate, an analysis is most difficult and filled with pitfalls that make a conclusion hazardous, to say the least. Prognosis in most instances, therefore, has to be estimated on the basis of a collection of relatively small groups of cases.

I have an insufficient number of cases of my own to draw conclusions on the basis of so-called five-year cures. Recently, however, I have followed up 90 consecutive patients who were operated upon three years or more ago, and who survived operation. Sixty-seven and seven-tenths per cent, or 2 patients out of 3, were alive three years later, regardless of whether at the time operation was considered to be palliative or not. If, when the operation was performed, no evidence of metastasis was found, the survival rate was still better; of 45 patients who did not have nodal involvement, 39 or 86.7 per cent were alive three years later. Among patients who had nodal involvement the three-year survival rate was brought down to 50 per cent.

In 11 cases in which resection was done it was considered palliative because of metastasis, though not extensive, in the liver. Five of the 11 patients were alive three years later; this fact indicates that resection of the primary growth in certain cases is not without apparent benefit even under such circumstances.

Twenty-nine of the 90 patients died within three years after operation. Of this group, 15 died in the third year after operation. Four of the 29 patients apparently succumbed from causes other than neoplasm.

Summary

To sum up, one-stage combined abdominoperineal resection for malignancy of the lower portion of the sigmoid, the rectosig-

moid and the rectum, done in the manner described, carries a low surgical mortality, and is the procedure of choice in a majority of instances. When it is carefully and radically done, the prognosis is good. The results of follow-up study indicate that such a radical procedure is of value in selected cases even as a palliative operation.

CERTAIN HARMFUL EFFECTS OF THE SULFONAMIDE DRUGS

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It is the purpose of this paper to point out some of the factors concerned in the production of toxic effects by the sulfonamide drugs; to review briefly the more common reactions, with illustrative case reports from Duke Hospital; and to indicate the precautions which should be observed during the use of these drugs. The spectacular benefits and life-saving properties of the sulfonamides are well known, but the danger of harm, or even death, from their use has not always been sufficiently emphasized. As a result there has been indiscriminate and unjustifiable use of these drugs, often without due regard to their toxicity.

Variation in the susceptibility of patients to the toxic effects of the drugs is one factor in the production of harmful reactions. Sulfanilamide, and all of the related drugs which have come into use, are capable of producing severe poisoning in animals and in man if given in sufficiently large doses. This type of poisoning might be referred to as the "sure toxicity" of the drug, due to overdosage. In order for the drug to be useful, the therapeutic or effective dose must be smaller than the surely toxic dose. The size of the effective dose depends to a large extent upon the susceptibility of the *bacteria* (and the immunity response of the patient); the toxic dose depends upon the susceptibility of the *patient*. These factors probably are largely independent of each other. Thus certain strains of organisms may develop resistance and become "fast" to the drug, so that ordinary therapeutic concentrations no longer inhibit their growth, and infections due to these organisms cannot be controlled by safe doses of the drug.

When the toxic dose of a drug is determined experimentally, animals especially selected for uniformity are used. Even under these conditions wide variation in the susceptibility of different animals to the drug is observed[1]. In giving potentially toxic drugs, such as sulfonamides, to patients, we then would expect definite variations in the susceptibility of individuals, even if the population were relatively uniform. That individual patients are not uniform of course is obvious, there being many variables of age, sex, weight and changes brought about by disease. Therefore, we must recognize the fact that there will be wide and important variations in the susceptibility of patients to the toxic effects of sulfonamides, and that in any large group of patients a few individuals will be encountered for whom the average safe dose of the drug is in reality an overdose, or toxic dose. The only way to avoid this possibility is to keep the total dose administered as small as is consistent with good practice. This variation in individual susceptibility, then, is one factor which is responsible for some toxic reactions to the sulfonamides, especially those such as hepatitis and depression of bone marrow, which usually appear only after administration of large amounts of the drugs.

By far the greater number of reactions to sulfonamides, however, appear to be due to other factors of so-called "idiosyncrasy" or "sensitivity". In most instances this sensitivity develops during or after the administration of the drug, although occasionally it is apparent with the first dose and is referred to as "idiosyncrasy". However, the meaning of this term as applied to drug reactions is far from being clearly defined[1,2].

The common reactions of drug fever and skin eruptions are considered to be manifestations of sensitivity or hyperergy. They usually occur after the lapse of a definite period of time during the administration of the drug, or when a second course is started. There has been considerable speculation concerning the nature of the antigen in these cases. Most workers have reported negative skin tests to the pure drugs, even in sensitive patients. However, Wedum has secured

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1. Clark, A. J.: The Mode of Action of Drugs on Cells, Baltimore, The Williams and Wilkins Co., 1933, pp. 97 and 108.
2. Clark, A. J.: Applied Pharmacology, ed. 6, Philadelphia, P. Blakiston's Son & Co., Inc., 1938, pp. 17 and 114.

Table 1

PRINCIPAL TOXIC REACTIONS TO SULFONAMIDES

	Time of Occurrence	Frequency of Occurrence			
		Sulfanilamide	*Sulfapyridine*	*Sulfathiazole*	*Sulfadiazine*
Nausea & Vomiting	Early	10-20%	40-55%	20-40%	Rare
Cyanosis		Frequent	Rare	Rare	
Mild Anemia	Usually Late	Very Frequent	Frequent		
Hemolytic Anemia		2-3%	Rare		
Granulocytopenia	Usually Late; Early, if Sensitized.	0.1%	0.1-0.8%	0-0.7%	Less than 1%
Hematuria	Any Time *	Very Rare	1-3% *	1-3% *	0.2-1% *
Oliguria		0 ?	0.1-0.5% *	0.5-1% *	0.5-1% *
Anuria			0.1% *		
Hepatitis	Usually Late; Early, if Sensitized.	Rare	Rare	Rare	Rare
Fever	Usually in 6-14 Days; Immediately if Sensitized.	10%	2-5%	5-10%	1-2%
Skin Eruptions		2-5%		4-6%	1-3%
Nervous Disturb.	Early	0.5-1%	0.3-5%	0-3%	0-5%
Acquired Sensitivity	Any Time	Fairly Frequent	Rare	Frequent	Rare ?

* Avoidance of this complication depends chiefly upon maintaining adequate urinary output . . .

some evidence that a combination of drug with protein may be the sensitizing substance. The literature dealing with this subject has been reviewed by Wedum[3] and in a recent editorial in the *Journal of the American Medical Association*[4]. There does not seem to be any way to predict which patient will develop sensitivity.

Table 1 presents the principal toxic reactions. This table has been compiled from the reports of large series of cases published by Janeway (using Long's figures)[5], Keefer[6], Flippin *et al*[7] and Finland[8]. *Nausea* and *vomiting* usually appear early in the course of treatment and are most frequent with sulfapyridine, frequently limiting the use of this drug. *Cyanosis* also develops fairly promptly; it frequently occurs with sulfanilamide but seldom is seen with the other drugs. It is of little significance.

3. Wedum, A. G.: Immunological Specificity of Sulfonamide Azoproteins. J. Infect. Dis. 70:173-179 (March-April) 1942.
4. Editorial. Sulfonamide Sensitivity, J. A. M. A. 119: 1202 (Aug. 8) 1942.
5. Janeway, Charles A.: The Sulfonamides, Parts I and II, New England J. Med. 227:989-995 (Dec. 24) and 1029-1044 (Dec. 31) 1942.
6. Keefer, C. S.: Toxic Reactions Following Sulfonamide Treatment. New England J. Med. 226:266, 1942.
7. Flippin, H. F., Schwartz, L. and Domm, A. H.: Modern Treatment of Pneumococcic Pneumonia, J.A.M.A. 121: 230-237 (Jan. 23) 1943.
8. Finland, M.: Comparison of the Common Sulfonamides (Proc. 11th Ann. Meeting Am. Acad. Pediat.), J. Pediat. 21:813, 1942.

Mild anemia with a gradually falling hemoglobin level is frequent with sulfanilamide, usually developing after seven days or more. It may be combatted by transfusions, if necessary. Severe, *acute hemolytic anemia* is a dangerous complication during which the hemoglobin may fall 30-50 per cent or more within twelve to twenty-four hours. It calls for immediate discontinuance of the drug and copious transfusions. This type of anemia is most frequent with sulfanilamide, but has been reported with the other drugs.

Granulocytopenia or agranulocytosis is one of the most feared complications, because it carries with it a mortality of about 70 per cent[6]. It usually appears after two weeks or more of treatment. Simple leukopenia, in which there is more or less uniform depression of all of the white cells, usually is of little significance if the drug is discontinued. Agranulocytosis, however, is usually fatal, once it develops. It is accompanied as a rule by stomatitis, fever, and perhaps other signs of drug toxicity. Repeated white cell counts are necessary if this condition is to be detected early. The drug must be stopped at the earliest suspicion of a relative decrease in the polymorphonuclear granulocytes, and liver, pentnucleotide and transfusions may

be tried by way of therapy. High fluid intake, to assist in excretion of the drug, is important in the treatment of any toxic reaction. The following case report describes an instance of agranulocytosis due to sulfathiazole.

Case 1

The patient, a 38 year old white married woman, was admitted with the chief complaint of fever for four weeks. At the onset, she had malaise, and when she was seen by her physician five days later, a diagonsis of pneumonia was made. She was put to bed and was given sulfathiazole, which she continued to take until the time of admission. After several days, her condition improved, but low-grade fever persisted. She had a chill about one week before admission, and another on the day before admission. Her mouth had been sore for three days. It was estimated from the patient's story that she had received doses of sulfathiazole totaling 134 Gm.

Clinical and Laboratory Findings: The temperature was 39.2 C. (102.6 F.), the pulse 112, respirations 24, blood pressure 110 systolic, 68 diastolic. The teeth were carious and there was marked ulceromembranous stomatitis and gingivitis. The pharynx was hyperemic. Dullness to percussion and bronchial breathing were present over the left lower lobe and x-ray revealed irregular consolidation of this lobe. The liver edge was palpable but not very tender.

A blood count on admission showed 84 per cent hemoglobin, 3,550,000 red blood cells, 1,770 white blood cells, with 48 per cent small lymphocytes, 44 per cent large lymphocytes, and 8 per cent monocytes. No granulocytes were seen. The urine was clear and the blood serology negative. Mixed bacteria, including hemolytic streptococci and pneumococci which could not be typed, were cultured from the mouth and sputum, but there was no clear-cut predominating organism. The sternal bone marrow was practically devoid of granulocytes. The blood sulfathiazole level on the day after admission was 0.5 mg. per 100 cc.

Course in Hospital: The temperature remained elevated between 39.2 C. (102.6 F.) and 40.8 C. (105.6 F.). One transfusion was followed by a severe febrile reaction and jaundice, which gradually cleared. The white blood cell count slowly declined to 570 and the differential count showed no granulocytes. Fluids were forced and large doses of liver extract and vitamins were given, but the patient went steadily downhill and died on the fourth hospital day.

Pathologic Findings: Autopsy showed the bone marrow to be hypoplastic. There was pneumonia of the left lower lobe. Pneumococci were cultured from the lung, but could not be typed.

Comment: This case illustrates well one of the dangers of *prolonged* sulfonamide therapy. The pneumococcus infection in the lung failed to respond to sulfathiazole, and continued administration of the drug produced agranulocytosis. Serum therapy would have been indicated early in the disease (see case 4).

Hematuria, oliguria, and *anuria* usually are due to purely physical and mechanical causes. If the urine *output* is not adequate to keep in solution the free and acetylated drug which must be excreted in the urine, it will crystallize and the crystals may irritate, traumatize or actually block the renal tubules and pelves, or the ureters. Prevention is the only safe course, and this complication may be prevented by maintaining an adequate urinary *output.* Fluids must be forced, but it is not sufficient to record a seemingly adequate intake, because the crucial point is the *output* of urine. If other factors such as perspiration, vomiting, and diarrhea result in fluid loss, the output through the kidneys may fall to dangerous levels, even though the intake seems adequate. This point will be illustrated by case 2. Alkali, such as sodium bicarbonate, may help to prevent the formation of crystals[9], but adequate urine flow is much more important and effective. If urinary tract complications develop, fluids must be forced and the drug must be withdrawn at least temporarily; and if oliguria or anuria occur, irrigation of the ureters and renal pelves should be carried out. Some such cases have ended fatally[10]. Because of the greater solubility of sulfanilamide, it seldom, if ever, is responsible for this type of injury. However,

9. Schwartz, L., Flippin, H. F., Reinhold, J. G. and Domm, A. H.: The Effect of Alkali on Crystalluria From Sulfathiazole and Sulfadiazine, J.A.M.A. 117:514-515 (Aug. 16) 1941.
10. (a) Pepper, D. S. and Horack, H. M.: Crystalline Concretions in the Renal Tubules Following Sulfathiazole Therapy, Am. J. M. Sc. 199:674-679 (May) 1940.
    (b) Bradford, H. A., and Shaffer, J. H.: Renal Changes in a Case of Sulfadiazine Anuria, J.A.M.A. 119:316-318 (May 23) 1942.
    (c) Raines, S. L.: Ureteral Obstruction Following the Use of Sulfadiazine, J.A.M.A. 119:496-497 (June 6) 1942.

sulfadiazine, otherwise perhaps our best drug, is a fairly frequent offender if adequate precautions are not taken[10c,11].

Case 2

A 19 year old white male student complained of a "chest cold" the day before admission, and on the day of admission he developed pain in the right side of his chest and had a "mild shaking chill" in the afternoon. There was some non-productive cough. He came into the hospital on July 15, 1942.

Clinical and Laboratory Findings: The temperature was 39.4 C. (103 F.), the pulse 120, respirations 24, blood pressure 126 systolic, 80 diastolic. Except for some rhinitis, fever and prostration, the physical examination was negative. No abnormal signs were detected in the lungs at admission. The hemoglobin was 90 per cent and there were 8800 white blood cells, with 74 per cent polymorphonuclears. The urine was clear on admission. A sputum culture showed hemolytic streptococcus. A chest x-ray showed early infiltration of the left upper lobe on admission; five days later there had been rapid spread of the process throughout the left lung and right lower lobe. Two weeks after admission the lungs were clear. After observation the condition was thought to be "atypical pneumonia".

Course in Hospital: The day after admission, before the type of pneumonia was recognized, sulfadiazine was administered, and the patient received 26 Gm. in five days, with equal doses of sodium bicarbonate. On the first five hospital days the fluid intake varied between 4300 cc. and 2700 cc., the average being 3400 cc. On the fifth day he complained of pain upon urination, with some back pain, and began to void bloody urine containing sulfadiazine crystals. Urination became difficult and scant, with an output of only 500 cc. during the next twenty-four hours. The urine was loaded with crystals. Cystoscopic examination showed the left ureteral orifice to be normal; the right, however, was edematous and reddened, and lying in the orifice was some dark brownish material, thought to be crystals. The right ureter was catheterized and there was immediate flow of bloody urine. The kidney pelvis was irrigated with sodium bicarbonate solution, fluids were forced, and the urinary output soon returned to normal, with relief of symptoms.

Comment: In this case the fluid intake ordinarily would be regarded as quite adequate. However, the weather was very hot, perspiration was profuse, and the urinary output was too low. Complete blockage of one ureter resulted and the patient narrowly escaped a serious complication. Moral: It is the urinary *output* which counts.

Another type of anuria, due to severe degenerative lesions of the kidneys, occurs rarely, but apparently is usually fatal. Severe degeneration of tubular epithelium has been reported[12]. A case of toxic anuria due to sulfathiazole recently was reported in this JOURNAL[13] from a clinico-pathological conference at the Charlotte Memorial Hospital. Dr. Kimmelstiel, the pathologist, termed the condition "toxic interstitial nephritis" because of the dense interstitial cellular infiltration of the kidneys. There was some tubular damage. Interstitial myocarditis and interstitial pneumonia also were present. Many eosinophils were seen, and it was suggested that the lesions were due to a hyperergic reaction to the drug.

Hepatitis in the course of sulfonamide therapy fortunately is rare. Jaundice developing during treatment may indicate hemolysis of red cells or hepatitis. Hence, the blood and urine must be examined. In the case of hemolysis there will be rapidly developing anemia and hemoglobin in the urine; in the case of hepatitis with jaundice the urine will contain bile. If the drug is stopped promptly in cases of hepatitis and if appropriate treatment is given, with plentiful fluids, liver extract, vitamins, and high carbohydrate, high protein, low fat diet, the chances of recovery from the hepatitis are good. However, some cases go on to acute yellow atrophy of the liver and death. Hepatitis usually occurs after prolonged treatment, but may occur early if the patient previously has been sensitized to the drug[14].

11. (a) Schulte, J. W., Shidler, F. P., and Niebauer, J. J.: Acute Urinary Suppression Following Sulfadiazine Therapy, J.A.M.A. 119:411-413 (May 30) 1942.
(b) Wright, D. O. and Kinsey, R. E.: Renal Complications Due to Sulfadiazine, J.A.M.A. 120:1351-1354 (Dec. 26) 1942.
(c) Louria, A. L. and Solomon, C.: Complete Anuria Caused by Sulfadiazine, J.A.M.A. 120:1354-1356 (Dec. 26) 1942.

12. (a) Lederer, M. and Rosenblatt, P.: Death During Sulfathiazole Therapy, J.A.M.A. 119:8-18 (May 2) 1942.
(b) Hellwig, C. A. and Reed, H. L.: Fatal Anuria Following Sulfadiazine Therapy, J.A.M.A. 119:561-563 (June 13) 1942.

13. Clinico-Pathological Conference, Charlotte Memorial Hospital, North Carolina M. J. 4:102-107 (March) 1943.

14. Fitzgibbon, P. and Silver, B.: Necrosis of the Liver from Sulfanilamide, Cal. and West. Med., 50:123, 1939; quoted by Ottenberg, R. and Spiegel, R.: The Present Status of Non-Obstructive Jaundice Due to Infectious and Chemical Agents, Medicine 22:27-71 (Feb.) 1943.

Hepatitis develops slowly and may not appear until some days after cessation of sulfonamide therapy.

Fever and *skin eruptions* are fairly common with all sulfonamide drugs[15]. They may appear together or independently, but usually develop within six to fourteen days after beginning therapy. However, if previous sensitization has occurred, these reactions may appear abruptly after the first dose of the drug. There may be accompanying chills, leukocytosis, and lymphadenopathy. When unusual elevation of temperature develops during the treatment of an infection, it may be difficult to determine whether it is due to drug fever or to renewed activity of the infection. If drug fever is not recognized, serious complications or death may result from continuation of the sulfonamide. Cayer[16] has observed that there is often relative bradycardia with drug fever, and this may be a helpful sign. Other points which may be of assistance in making the distinction are that drug fever usually comes at a time when infection is subsiding, and that the patient with drug fever usually does not feel as ill as his temperature would indicate.

Skin rashes may assume a variety of forms. Local eruptions or generalized reactions may follow local application of sulfonamides[17] as in ointments. The sensitization of the skin may be reactivated by later oral administration. Pillsbury and Livengood[17a] have found local reactions more frequent in patients with eczematoid dermatitis with secondary bacterial infection, indicating that a preexisting allergic tendency predisposes to the reaction. Rash and fever may not be serious in themselves, but if the drug is continued, more severe reactions may occur[6].

15. In the original presentation of this paper, through the courtesy of Dr. J. Lamar Callaway, Chief of the Section of Dermatology and Syphilology, Duke Hospital, colored slides were shown illustrating the more unusual erythema multiforme and erythema nodosum skin reactions. These illustrations are not published because of difficulty in reproduction.

16. Cayer, David: Relative Bradycardia as a Sign of Sulfonamide Fever, North Carolina M. J. 2:486-489 (Sept.) 1941.

17. (a) Livingood, C. S., and Pillsbury, D. M.: Sulfathiazole in Eczematous Pyoderma; Sensitization Reaction to Successive Local and Oral Therapy, J.A.M.A. 121:406-408 (Feb. 6) 1943.
(b) Cohen, M. H., Thomas, H. B. and Kalisch, A. C.: Hypersensitivity Produced by the Topical Application of Sulfathiazole, J.A.M.A. 121:408-411 (Feb. 6) 1943.
(c) Weiner, A. L.: Cutaneous Hypersensitivity to Topical Applications of Sulfathiazole, J.A.M.A. 121:411-413 (Feb. 6) 1943.

Nervous reactions may range all the way from dizziness, mild confusion and disorientation to severe psychosis[18]. If the patient is given proper nursing care, these reactions usually are of little consequence.

A number of other less frequent untoward effects have been reported, some of them severe. Purpura, peripheral neuritis and exfoliative dermatitis may be mentioned as rare complications. Peritoneal adhesions, producing intestinal obstruction, after intraperitoneal use of the drug[19], and convulsions following intracranial implantation[20] also have been described. Myocardial lesions[21,13] and more or less generalized focal lesions of the viscera[12a,22] have been found at autopsy following death from sulfathiazole. Ellis and McKinlay[23] have described a case of "allergic pneumonia" due to prontosil, and it will be recalled that in the case reported from Charlotte Memorial Hospital, mentioned above[13], "interstitial pneumonia" was found at autopsy. In Ellis and McKinlay's case patchy infiltration of the lungs, fever and eosinophilia were observed, the symptoms subsiding after the drug was discontinued. However, the patient again developed rales several months later when he took neoprontosil.

The last division of table 1, *Acquired Sensitivity*, deserves special attention. The common reactions, such as fever and rash, represent instances of acquired sensitivity. However, in many cases such sensitivity does not become manifest as a drug reaction during the first course of the drug; but may appear upon subsequent administration. The first course may not be sufficiently long to allow time for the reaction to appear, but nevertheless sensitization may occur. Even more prolonged administration may fail to produce a reaction, but the patient then may react at the beginning of a second course. The symptoms may be relatively mild, with fever and rash, but they are apt to appear with explosive violence (sulfonamide shock),

18. Little, S. C.: Nervous and Mental Effects of the Sulfonamides, J.A.M.A. 119:467-474 (June 6) 1942.

19. Sutton, H. B.: The Intraperitoneal Use of Sulfathiazole, With Special Reference to the Production of Adhesions, J.A.M.A. 119:559 (June 13) 1942.

20. Pilcher, C., Angelucci, R., and Meacham, W. F.: Convulsions Produced by the Intracranial Implantation of Sulfathiazole, J.A.M.A. 119:927 (July 10) 1942.

21. French, A. J. and Weller, C. V.: Interstitial Myocarditis Following the Clinical and Experimental Use of Sulfonamide Drugs, Am. J. Path. 18:109 (Jan.) 1942.

22. Merkel, W. C. and Crawford, R. C.: Pathological Lesions Produced by Sulfathiazole, J.A.M.A. 119:770-776 (July 4) 1942.

23. Ellis, R. V. and McKinlay, C. A.: Allergic Pneumonia, J. Lab. & Clin. Med. 26:1427-1432 (June) 1941.

with chills, fever, lymphadenopathy and skin rash. Occasionally severe or fatal conditions such as agranulocytosis[6] or hepatitis[14] may develop. This sensitivity may be specific for the particular drug in some cases, thus permitting substitution of another one; or, rarely, the patient may react to all of the drugs.

The frequency with which sensitivity develops is not accurately known. One group[24] has reported that sensitization to sulfathiazole occurred in 36 per cent of a series of 53 patients who were given two courses in order to test for this. In patients treated with only one course of sulfathiazole, reactions were much less frequent (5-10 per cent). Other writers[25], however, failed to observe such sensitivity in 24 cases of recurrent pneumonia treated with sulfonamides. Sulfathiazole appears to be most active in inducing this type of sensitivity.

Sensitization to sulfonamides may occur without evidence that it is developing, and this is another valid reason why these drugs should not be used unnecessarily and without definite indication. It also furnishes good reason for caution in administering sulfonamides to patients who previously have received the drugs, especially if a reaction occurred during the first course. Under such conditions a test dose is desirable, just as testing for sensitivity to serum is necessary when it is administerd to a patient for the second time. Janeway[5] suggests a test dose of 0.5 Gm., followed by observation of the patient for twelve hours, if conditions will permit the delay. If sensitivity is present, another drug may be tried or another form of therapy, such as serum therapy in pneumonia, may be used, if available. Lyons and Balberor[24] suggest that desensitization may be achieved by giving repeated small doses. Erskine[26] in London states that desensitization should be attempted in all cases of known sensitivity so as to avoid later difficulty. He advises stopping the drug when reaction occurs, allowing time for complete excretion, and then resuming treatment in "the same or reduced dosage", while keeping the patient under observation. The following cases illustrate instances of sensitivity.

24. Lyons, R. H. and Balberor, H.: Febrile Reactions Accompanying the Readministration of Sulfathiazole, J.A.M.A. 118:955-958 (March 21) 1942.
25. Schwartz, L., Flippin, H. F. and Clark, J. H.: Recurrent Attacks of Pneumococcic Pneumonia Treated with Sulfonamides, J. Lab. & Clin. Med. 28:294-297 (Dec.) 1942.
26. Erskine, D.: Sulfonamide Sensitization, Lancet 2:568-569 (Nov. 14) 1942; Abstract, J.A.M.A. 121:625, 1943.

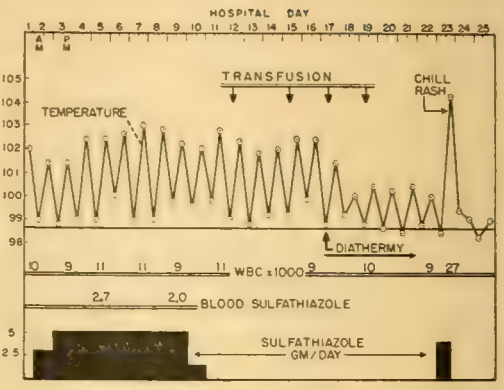


Figure 1. Temperature chart and treatment in Case 3.

Case 3

This 32 year old white married woman complained of pain in the lower abdomen for ten days. During this time she had had evening temperature of 38.3-38.8 C. (101-102 F.) every day.

Clinical and Laboratory Findings: Upon admission the temperature was 38.8 C. (102 F.), the pulse 96, respirations 24, blood pressure 96 systolic, 66 diastolic. There was moderate tenderness over the lower abdomen, especially on the right side. Pelvic examination revealed a large, ill-defined mass in the right adnexal region, which was interpreted as a pelvic abscess. The hemoglobin was 52 per cent, the red blood cells 3,720,000, white blood cells 9900, with 75 per cent polymorphonuclears. Catheterized urine showed rare white blood cells. Blood Kahn, Kline, and gonococcus complement fixation tests were negative.

Course in Hospital (fig 1.): The patient was put on sulfathiazole, 5 Gm. per day, but when there was no improvement it was discontinued on the tenth day. There was no perceptible reaction to the drug and the temperature continued to spike each day. For the next twelve days the patient was treated with transfusions, hot douches, and pelvic diathermy. There was considerable improvement. Thirteen days after sulfathiazole had been discontinued, it was started again. The patient received 4 Gm. during the day, and in the afternoon had a chill, with temperature rising to 40.2 C. (104.4 F.), and the leukocyte count to 27,000. The drug was stopped. By the next morning a multiform skin rash had appeared. The course then was relatively afebrile and the patient

was discharged after five days. Four months later she still had pain and a mass in the right adnexal area. She has not returned since that time.

Comment: Although sulfathiazole was administered for ten days during the first course, there was no perceptible reaction. However, when the drug was given again thirteen days later there was a prompt and rather severe reaction. This seems to indicate definite acquired sensitivity.

Case 4

The patient, a 61 year old white married man, developed a cold and cough one week before admission. Two days before coming in he began to ache all over and his cough increased. The next day his temperature was 102.5 F. and he had some pain in the left shoulder.

Clinical and Laboratory Findings: The temperature was 39.6 C. (103.3 F.), the pulse 90, respirations 26, blood pressure 120 systolic, 80 diastolic. The patient was restless, confused and slightly cyanotic. The nose and throat were inflamed. Chest signs were indefinite, but a few scattered rales were heard. The x-ray film showed little at admission, but two days later a pneumonic process was found in the lower two-thirds of the right lung. Physical signs were quite definite at that time. The hemoglobin was 90 per cent, the red blood cells 4,370,000, white blood cells 9,200 with 70 per cent polymorphonuclears, of which 14 per cent were stab forms. The urine showed moderate numbers of white blood cells and a few casts. The blood serology was negative. Type 21 pneumococci, which killed a mouse in fifteen hours, were obtained from the sputum.

Course in Hospital (fig. 2): The patient was put on sulfathiazole, but did not respond. When the typing became available, he was given 100,000 units of antipneumococcus serum per day for two days, following which there was a prompt fall in temperature. Because the nonprotein nitrogen rose to 54 mg. per 100 cc. sulfathiazole was discontinued. After three days of normal temperature there was an increase in the chest signs, with a rise in temperature, which ran a fairly even course for the next four days until sulfathiazole was started again. The temperature then rose during the next two days to higher levels than at any time in the hospital, and the patient developed conjunctivitis, but no rash. The drug was discontinued and

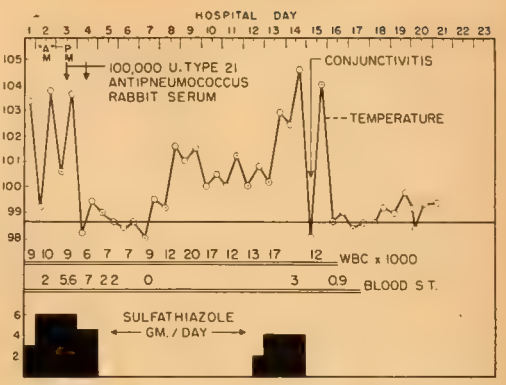


Figure 2. Temperature chart and treatment in Case 4.

the patient improved rapidly. At a follow-up visit after one month he was well and the lungs were clear.

Comment: This also appears to be an instance of acquired sensitivity to sulfathiazole. It was not given long enough at the first course to allow a reaction to appear, but there was high fever and conjunctivitis in response to the second course.

It is believed that when all of the possibilities of harm from the sulfonamides are considered, the indiscriminate use of these drugs for minor infections and in the absence of definite indications is unjustifiable. When a sulfonamide is given it must be with the realization that there is definite risk of serious reactions or even of death from the drug. Janeway[5] in his excellent article on the clinical use of the sulfonamides estimates the mortality from treatment with these drugs at 0.2 per cent. Although small, this is a very real risk (2 in 1000) for any form of treatment, and there is the added danger of sensitizing the patient, so that he may not be able to take the drug in event of later serious illness.

Summary

The more common toxic effects of the sulfonamide drugs have been reviewed, and it has been pointed out that the risk attached to treatment with these drugs is too great to permit their use in the absence of clear-cut indications. The following is a summary of precautions which should be carried out with all patients receiving sulfonamides:

1. Ask the patient about previous use of the drug, and if he has had sulfonamide medication, give a test dose if possible.

2. Do not give the drugs for minor infections. Use them only when they are definitely indicated.

3. Limit the treatment to as short a time as possible, in order to avoid the appearance of sensitivity reactions. Less than six days is desirable.

4. Limit the total amount given to as small a figure as possible in order to avoid overdosage in susceptible individuals and serious reactions which occur after large dosage.

5. Keep the urine output up to 1500 cc. per day. Measure it, or have the patient do so, every day while he is taking the drug.

6. Keep the patient under observation for signs of rash, jaundice, anemia or other findings. Instruct him to report any unusual symptoms.

7. Urinalysis, hemoglobin determination and white cell count should be made every two to three days if possible. Maintain close observation of the patient if this is not possible.

8. Determination of the blood level of the drug is essential if large doses are used, if there is impairment of kidney function, or if the patient does not respond to the drug. Office sets now are available which permit reasonably accurate estimation of the blood level on a small quantity of blood and with the use of only a few minutes of time.

9. Watch especially for rash and fever from the sixth to the fourteenth day; for hepatitis, granulocytopenia and anemia after that; and for *kidney complications all of the time*.

10. Discontinue the drug promptly if reaction occurs.

Abstract of Discussion

Dr. E. McG. Hedgpeth (Chapel Hill): There is nothing that I can add to this excellent presentation of this subject except to put emphasis upon a few points which Dr. Hendrix has made.

One point of supreme importance is that we should realize from the beginning that all indications for the use of sulfonamide drugs should be on a bacterial basis. These drugs are not to be used empirically. I am afraid all of us have been guilty of using them in this way at some time or other. Dr. Hendrix cites a figure given by an authority as to the mortality rate from these drugs which is certainly higher than the mortality rate in the use of arsenical drugs, which drugs we ordinarily think of as being fairly dangerous.

It is important to stop the drug when the desired therapeutic response does not follow within a reasonable time. By doing that we avoid complications, such as Dr. Hendrix has pointed out. The administration of fluids in liberal quantities is also, of course, quite important, and probably more so is the administration of alkalis. As Dr. Hendrix points out with emphasis, the determination of the urinary output is vastly more important than the determination of the amount of fluids that the patient takes. Unfortunately, most of us are not able to do all of the laboratory work that might be ideally and theoretically indicated. We would not be able to do it during normal times, and particularly at the present time is it impossible. Therefore, I should like to emphasize what Dr. Hendrix's charts so very well point out—that most of the complications encountered in sulfonamide therapy can really be recognized or suspected early by simply using careful clinical observation. All of us are prone to forget that and to cease to use to the best of our ability clinical observation, because it is so easy to order a blood count and to put too much dependence upon the laboratory.

All of us who have used sulfonamides must have been impressed by the decrease in the unpleasant reactions experienced in the use of the newer compounds. We have all had the experience, I expect, of trying to give some sulfonamide to a patient and finding that the patient is unable to take it because of nausea and vomiting. In many cases it was probably fortunate for the patient that they did so react. In those patients who are able to take the drug without discomfort there is often a tendency to administer it in larger doses or for longer periods of time than is actually necessary, thereby running the risk of producing some of the toxic manifestations that occur later as a result of prolonged use or overdosage.

Dr. Frederick R. Taylor (High Point): Here is a type of sulfonamide therapy that I find useful. When I find a patient with a violent sore throat where there is no suggestion of diphtheria or anything like that, I don't ordinarily stop to get a culture, but I use a sulfonamide powder locally. It is almost impossible, in administering it like that, to cause any toxic complication, and in a very large percentage of cases the patients are well within 24 hours.

Dr. Hendrix: In closing may I say that I have no desire to discourage the use of these exceedingly valuable drugs when the indication for their use is present. I think that our decision in the matter is a question of clinical experience and judgment. Certainly these drugs have revolutionized medicine in many ways, and for that reason it has been the purpose of this discussion to attempt to point out that we must not lose sight of the harmful possibilities of these valuable weapons which are at our disposal.

HISTOPLASMOSIS: REPORT OF A CASE IN NORTH CAROLINA

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Histoplasmosis was first described in 1906 by Darling, who reported a case occurring in Panama. Cases have been reported sporadically since then from various portions of the world. Renewed interest in the disease has followed the appearance of the condition in

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various parts of the United States. About 66 cases have been reported in the literature up to the present time. The disease has been found in our neighboring states of Tennessee[1], Virginia[2], the District of Columbia[3], and Alabama[4], but no cases have been reported from North Carolina. The purpose of this communique is to call attention to the presence of the disease in our state by reporting a case with autopsy findings. A brief resume of our present knowledge of the disease is given as an introduction to histoplasmosis. A partial bibliography is appended for those interested in more detailed information.

Histoplasmosis is known also as Darling's disease or, more correctly, as reticulo-endothelial cytomycosis. It is a fungus disease caused by the Histoplasma capsulatum, which varies in morphological appearance according to the environment in which it is found[5]. In the cells of the body it appears as an intracytoplasmic structure measuring from 1 to 5 microns in diameter, and presents a distinct halo and a translucent capsule.

The method of spread of the disease is not known definitely. The disease has been described as occurring naturally in dogs[6]. The studies on the fungus indicate that, given the proper environment, the organisms might occur outside of warm-blooded animals[7]. Presumably the disease is spread from animal to animal by direct contact.

The portal of entry is not definitely established. The gastro-intestinal tract is indicted in those cases which showed ulcerative lesions in the ileum and colon, with enlargement of the mesenteric lymph nodes[8]. The experimental work on dogs substantiates this view[6]. On the other hand, the cases presenting massive pulmonary lesions suggest the respiratory tract as the avenue of invasion. Attempts to produce the disease by this route in animals have been unsuccessful[8].

The clinical course of the disease is variable. The symptoms most commonly encountered are those of a chronic febrile illness, weight loss, hepato-splenomegaly and generalized lymphadenopathy. Anemia and leukopenia are usually present. Other patients present a syndrome suggestive of chronic ulcerative enteritis[8]. Several cases of histoplasmosis in patients with pulmonary tuberculosis of the fibrocaseose or miliary type have been reported[7,9]. A few cases showed only granulomatous lesions of the skin and mucous membranes[10].

Diagnosis of the disease may be made by finding the typical structures within monocytes or neutrophils of the circulating blood on direct smear[1b,9]. Pathological examination of an enlarged lymph node or of a portion of a granulomatous lesion may reveal the organisms[10b,c]. However, absolute confirmatory evidence may be obtained by making a culture of suspected material on blood agar or Sabouraud's media[5,10a]. A specific skin test has been used with success experimentally, and to a limited extent clinically[11].

Treatment has been unsuccessful. Radiotherapy, antimony, arsenic, and iodine preparations have been used, but with little success. The disease is almost invariably fatal, running a course varying from a few weeks to several years. Three cases have been reported in which there has been apparent arrest of the disease process[12].

Report of Case

A 44 year old white carpenter was admitted to the medical service of Dr. Tinsley R. Harrison at the North Carolina Baptist

1. (a) Williams, R. H. and Cromartie, W. J.: Histoplasmosis: Report of a Case, Ann. Int. Med. 13:2166-2171 (May) 1940.
   (b) Dodd, Katherine and Tompkins, Edna: A Case of Histoplasmosis of Darling in an Infant, Am. J. Trop. Med. 14:127-137 (March) 1934.
2. (a) Reid, J. D., Scherer, J. H., Irving, H.: Systematic Histoplasmosis in the United States, Science, 91:264 (March 15) 1940.
   (b) Shaffer, F. J., Shaul, J. F., Mitchell, R. H.: Histoplasmosis of Darling, J.A.M.A. 113:484-488 (Aug. 5) 1939.
3. Hausmann, G. H. and Schenken, J. R.: A Unique Infection in Man With a New Yeast-Like Organism, Am. J. Path. 10:731-739 (Nov.) 1934.
4. Gunter, W. A. and Lafferty, C. R.: Histoplasmosis of Darling: Report of a Case. J.M.A. Alabama 9:337-339 (April) 1940.
5. Conant, N. F.: A Cultural Study of the Life Cycle of Histoplasma Capsulatum Darling, 1906, J. Bact. 41:563-579 (May) 1941.
6. DeMonbreun, W. A.: The Dog as Natural Host for Histoplasma Capsulatum, Am. J. Trop. Med. 19:565-587 (Nov.) 1939.
7. Meleney, H. E.: Pulmonary Histoplasmosis; Report of Two Cases, Am. Rev. Tuberc. 44:240-247 (Aug.) 1941.
8. Henderson, R. G., Pinkerton, Henry and Moore, Louis: Histoplasma Capsulatum as a Cause of Chronic Ulcerative Enteritis, J.A.M.A. 118:885-889 (March 14) 1942.
9. Parsons, Robert J.: Histopathology of Histoplasmosis in Man, Am. J. Path. 17:582 (July) 1941.
10. (a) Wright, R. B. and Hachtel, Frank W.: Histoplasmosis of Darling: Report of a Case, Ann. Int. Med. 15:309-319 (Aug.) 1941.
    (b) Brown, A. E., Havens, F. Z. and Magath, T. B.: Histoplasmosis: Report of a Case. Proc. Staff Meet., Mayo Clin. 15:812-816 (Dec. 18) 1940.
    (c) Anderson, W. A. D., Michelson, I. D., and Dunn, T. M.: Histoplasmosis in Infancy: Report of a Case, Am. J. Clin. Path. 11:344-355 (April) 1941.
11. Van Pernis, Paul A., Benson, Miriam E., and Hollinger, Paul H.: Specific Cutaneous Reactions with Histoplasmosis, J.A.M.A. 117:436-437 (Aug. 9) 1941.
12. (a) Meleney, H. E.: Histoplasmosis: A Review, Am. J. Trop. Med. 20:603-616 (July) 1940.
    (b) Simson, F. W. and Barnetson, J.: Histoplasmosis: Report of a Case, J. Path. and Bact. 54:299-305 (July) 1942.

Hospital on April 20, 1943, complaining of "gradually growing weaker." He had been in poor health since a severe illness in the summer of 1939. This was characterized by fever without chills, and by slight headache and bouts of vomiting. The illness lasted for six weeks, during which time he ran a spiking temperature curve, with peaks reaching 103 F. He was treated at home. Six weeks following the onset, when he was apparently on his way to recovery, he suddenly developed purplish-blue pin point and walnut-sized spots all over both feet and ankles and a few spots on the arms and lips. He became severely ill again and vomited everything he ate. New spots appeared from time to time as the old spots disappeared. He then noted bleeding from his gums and from a bad tooth, and blood in the urine, feces, and expectorated material. He was sent to another hospital, where "a blood transfusion stopped the bleeding." An x-ray was interpreted as showing bronchopneumonia. He was discharged from the hospital ten days later. He weighed 120 pounds at that time, in contrast to his usual weight of 165 pounds. He returned to his work in September, 1939, but stated that he never regained the good health that he had prior to his first illness. During the next three winters he had frequent colds, stomach upsets and marked constipation. In October, 1942, following an attack of "flu" he was sick for two weeks with malaise, fever, and night sweats. He returned to work until the latter part of December, 1942, when he developed another cold, which caused such extreme weakness that he was unable to carry out his tasks. Since January, 1943, he had become progressively weaker and had lost sixteen pounds in weight. Eight days prior to admission he began to have constant hiccups which were resistant to the usual therapy. He became disoriented and had hallucinations. There were periods, however, during which he was well oriented.

Physical examination revealed an acutely ill, poorly nourished, middle aged man who was mentally cloudy but was able to cooperate fairly well. He hiccuped at every breath. The axillary nodes on both sides were markedly enlarged, movable and nontender. Elsewhere they were small and shotty. There seemed to be slight left-sided facial weakness. No stiffness of the neck was present. The lungs were clear upon percussion and auscultation. The heart was not enlarged. A smooth, firm mass, interpreted to be the spleen, extended to the umbilicus. The liver edge was palpated 2 cm. below the right costal margin. Abdominal reflexes were absent. The remainder of the examination was non-contributory.

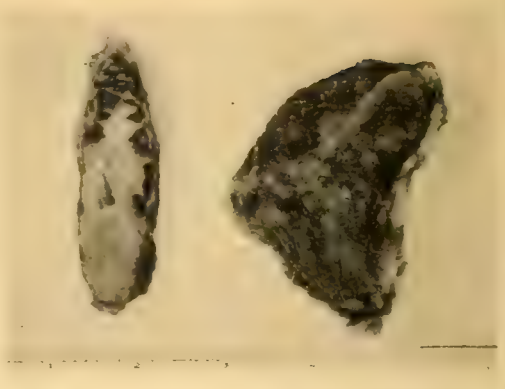


Fig. 1. Photograph of the adrenal glands. The enlargement of the glands and the fibrocaseose replacement of adrenal tissue are the pertinent features.

Microscopic examination of the urine showed 3 white cells per high power field, white cell casts and granular casts. Study of the blood revealed 13.7 Gm. of hemoglobin. The red blood cell count was 6,200,000, the white cell count 5,050. A differential count showed 76 per cent polymorphonuclear neutrophils, 2 per cent eosinophils, 13 per cent lymphocytes, and 7 per cent monocytes. One differential count revealed 9.5 per cent monocytes. The total serum proteins were 6.8 Gm., with 2.5 Gm. of albumin and 4.3 Gm. of globulin. The albumin-globulin ratio was 0.6. The spinal fluid pressure was 30 to 60 mm. of water. The fluid was clear. Blood culture was sterile. Urine culture showed Staphylococcus albus (non-hemolytic) and gram-positive and gram-negative bacilli. One acid-fast bacillus was found on one occasion in material secured by gastric lavage. Repeated examinations on two other occasions revealed no organisms. On two occasions acid-fast organisms were found in the urine. On May 13 several acid-fast bacilli were found in the sputum. An x-ray of the chest showed bilateral enlargement of the hilar shadows, with marked intensification of pulmonic markings in both upper lobes and to a lesser extent in both lower lobes, and with a fine granular infiltration throughout

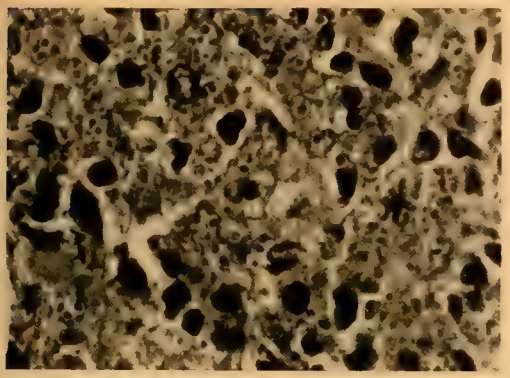


Fig. 2. Photomicrograph of section from the adrenal gland, showing the large number of cells containing the fungi.

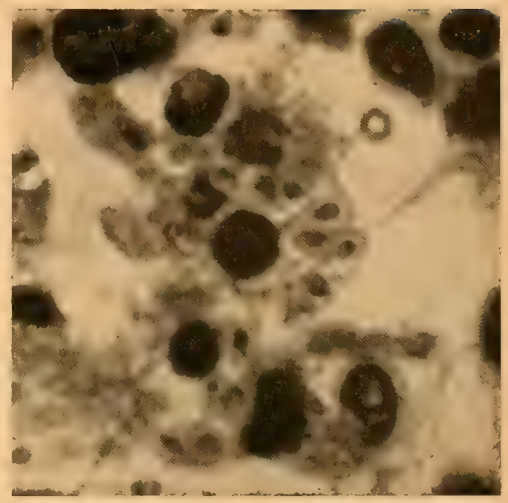


Fig. 3. Enlarged photomicrograph showing six encapsulated histoplasma within the cytoplasm of the cell.

the lung fields, this being most marked in the right upper lobe. A biopsy of the left axillary node showed a hyperplastic form of tuberculosis, but no organisms were demonstrated in the sections.

The hiccuping continued throughout the patient's stay in the hospital and did not respond to any of the usual methods of treatment. The patient was poorly oriented at times, but there were periods in which he was mentally clear and could discuss his illness. Fecal incontinence was noted on May 10, and weakness became more marked. On May 16 the patient's condition became much worse. The blood pressure was 80 systolic, 64 diastolic; the pulse was 112 per minute and weak. He developed a hemiplegia on the right side, with some facial paralysis on the left side. He became comatose and expired on May 17. The temperature curve was characterized by an irregular spiking course with peaks at about 102 F., but during the last four days of life it gradually reached 107 F.

Postmortem Findings

Gross appearance: The lungs weighed 700 Gm. each. On section, numerous light grey, discrete areas measuring up to 2 mm. in diameter were found scattered diffusely throughout the pulmonary substance bilaterally. Lymph nodes at the bifurcation of the trachea were slightly enlarged, light grey and firm. The liver weighed 2435 Gm. and appeared light reddish-brown in color. The spleen weighed 950 Gm., and on section discrete, greyish, pin head-sized lesions were seen scattered throughout the tissue. The right adrenal gland weighed 36 Gm.; the left, 52 Gm. There was marked replacement of cortical and medullary substance by a firm, light grey, fibrocaseose-appearing material. The kidneys weighed 250 Gm. each. In the distal portions of several of the pyramids light grey, firm areas measuring up to .7 mm. were seen. The mesenteric lymph nodes appeared generally slightly enlarged. Permission to examine the cranial contents was not granted.

Microscopic Appearance: The lesion common to all of the sections was of a granulomatous type with connective tissue activity, round cell infiltration, giant cell formation, and varying amounts of necrosis. The lungs, lymph nodes, spleen, liver, and kidneys showed typical tubercle formation with central necrosis, epithelioid proliferation, Langhans type of giant cells and lymphocytic infiltration. The tubercles in the lungs showed more necrosis than was seen in the other tissues. There was massive necrosis of the adrenal tissue, with only a slight amount of normal tissue remaining (fig. 1).

Intracytoplasmic bodies were found in the granulomatous tissue, along the edges of the necrotic tissue of the adrenal glands, and in some of the tubercles in the spleen, liver and lymph nodes (fig. 2). In some areas all of the macrophages contained from ten to twenty phagocytized structures presenting a definite capsule and measuring about 3 - 4

microns in diameter (fig. 3). Other areas presented only an occasional cell showing these bodies.

Modifications of the acid-fast stain applied to sections from both lungs revealed acid-fast, rod-shaped forms in the tubercles. Similar stains carried out on sections from other organs did not reveal acid-fast organisms in any of the lesions.

Sections of the bone marrow showed active erythropoiesis and reticulo-endothelial hyperplasia. No Histoplasma capsulatum were seen in the cells of the bone marrow.

Summary

1. A case of histoplasmosis with postmortem findings is reported.
2. The striking findings in this case were the generalized dissemination of the disease, the coexistence of tuberculosis, and the massive destruction of the adrenal glands.
3. A brief resume of our present knowledge of the disease is given.

OPERATIVE TREATMENT OF FRACTURE OF THE PATELLA

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and
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DURHAM

Much interest has been shown recently in the operative treatment of fracture of the patella. This renewed interest has been stimulated partly by an increase in the number of patella fractures seen since the advent of the high speed automobile and partly by the controversy among several schools of thought as to the best method of handling the fracture fragments. Many operative techniques have been described, which for this discussion may be divided into three types: (1) reapposition of the fragments; (2) excision of all but the major fragment; and (3) excision of the patella *in toto*.

We have had no experience in treating fresh fractures of the patella by total excision, and so we are presenting this paper only to condemn any efforts at reconstruction of the patella and to advocate excision of the least useful fragments and repair of the soft parts. However, before presenting our operative technique and case reports, we shall discuss total excision; for there is much good in the procedure, and it may be the treatment of choice. This statement is made because of the satisfactory results which we have seen following excision of the patella in severe arthritis of the knee and in view of the numerous reports of excellent results following total excision of the fracture fragments.

Total Excision

Brooke[1] made a thorough study of the mechanics of the knee and concluded that the patella serves no useful function. He pointed out that in slow-moving animals the bone is massive, while in rapidly moving animals it is small; finally in the kangaroo the patella is completely absent. Experimental evidence presented by Brooke showed that in the absence of the patella the efficiency of the knee joint is, if anything, increased—both as regards rapidity of movement and as regards power.

After examining a group of Brooke's patients and finding that his claim of having restored them to full functional activity by excision of the patella was fully justified, Groves stated[2]: "I went away convinced but still mystified." Groves then sought the assistance of an anatomist, who made two preparations which fully explained the results obtained in total excision. One preparation, a longitudinal section of the knee joint, showed that the quadriceps tendon merely passes over the patella and that the upper and lower margins of the bone are covered with fat and give no attachment to any of the ligamentus fibers. The second preparation showed the knee with the patella excised. In this specimen, pulling on the quadriceps tendon still produced extension of the knee. Groves concluded that there are ample fibers of the tendon present at each side of the patella to carry on continuity, and he confirms the opinion of many others that it is the suture of the lateral expansions which is the most important part of the operation of repair.

Brooke's work and Groves's observations are most convincing, but it may be that in their conclusions one important factor—the

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Read before the Second General Session of the Medical Society of the State of North Carolina, May 12, 1943.

1. Brooke, R.: The Treatment of Fractured Patella by Excision: A Study of Morphology and Function. Brit. J. Surg. 24:733-747 (April) 1937.
2. Groves, E. W. H.: A Note on the Extension Apparatus of the Knee Joint. Brit. J. Surg. 24:747-748 (April) 1937.

protection that the patella affords the knee from direct trauma—was overlooked.

Dobbie and Ryerson[3] made a most thorough review of the history of the treatment of fracture of the patella and presented 21 consecutive cases of fracture of the patella which were treated by total excision with most satisfactory and gratifying results. Seven of their patients began to show new bone in the quadriceps tendon at the site of the patella at the end of a month.

Blodgett and Fairchild[4] reported 55 fractures of the patella treated by open reduction: 26 were the result of automobile accidents; 25, the result of falls; and 4, the result of athletic activities. Thirty-five of the patients were treated by bone suture and attempts at patella repair. In 20 patients there was total or partial excision of the patella; in 9 the upper fragment was removed, in 3 the lower, and in 8 total excision was done. They concluded that partial or total excision produces excellent results, and found that the length of hospitalization is subsequently less in those patients treated by one of these methods. These authors made several observations on the rationale of the operation. On theoretical grounds, they do not advise the removal of the lower fragment of the patella, and they feel that, if care is exercised in suturing the tears of the knee joint capsule up into the sides of the patella, it can matter little whether one removes the fragments above the suture line of the capsule.

Callander[5] discussed the protection which the patella offers to the condyles, and noted that in kneeling the pressure comes on the patella and the tibial tuberosity. Chaput[6] found that the proximal fragments of a fractured patella may interfere with full flexion, and recommended its excision.

Partial Excision

Thomson[7] and Ferciot[8] have found that partial excision has been most satisfactory. It removes all possibility of non-union or refracture because, instead of joining two bony fragments that have a very low osteoblastic generative quality, one joins soft tissue to bone, thus lessening the period of disability, allowing early mobilization, and usually bringing satisfactory union and end result. They agree that the patella can be removed without interference to function; however, they draw attention to the protection which the patella offers to the condyles of the femur, particularly in flexed positions, and warn against removal of this buffer and exposure of the femoral condyles to the possibility of injury.

Our series of cases in which partial excision has been performed is too small to draw any conclusions as to whether the upper or lower fragments should be removed. In many cases there is comminution of the lower fragment and this leaves no opportunity to choose, as the comminuted fragments must be removed. Theoretically it appears that, when a choice can be made, the upper fragment should be removed, since the lower fragment is in a better position to give protection to the knee. Just how practical this protection is has not as yet been demonstrated; but certainly, when one considers the seriousness of trauma to the articular cartilage any protection is theoretically important. As has been stated before, it may be that total excision of the patella will prove to be the treatment of choice; but until sufficient time has elapsed to enable us to judge the late end results of the procedure, we feel that excision of the least useful fragments and repair of the soft tissue is the preferable operation.

It has long been agreed that open operation is indicated when there is any separation of the patella fragments—or, more important, when there is any appreciable tear of the capsule. When not contra-indicated because of shock or other injuries, immediate operation should be performed in order to evacuate completely the hematoma before clotting takes place in the tissue spaces and to take advantage of the early efforts at healing.

We agree with Henry that a transverse incision at the level of the fracture line is preferable to a vertical incision, as it gives better exposure of the lateral tears in the capsule without requiring separation of the cleavage planes and is less likely to cause contractures which may interfere with joint function. The U-shaped incisions create a flap which may be slow to heal because of

3. Dobbie, R. P. and Ryerson, S.: The Treatment of Fractured Patella by Excision, Am. J. Surg. 55:389-378 (Feb.) 1942.
4. Blodgett, W. E. and Fairchild, R. D.: Fracture of the Patella, J.A.M.A. 106:2121-2125 (June 20) 1936.
5. Callander, C. L.: Surgical Anatomy, ed. 2, Philadelphia, W. B. Saunders Co., 1939.
6. Chaput, cited by Dobbie and Ryerson(3).
7. Thomson, J. E. M.: Fracture of the Patella Treated by Removal of the Loose Fragments and Plastic Repair of the Tendon, Surg., Gynec. & Obst. 74:860-866 (April) 1942.
8. Ferciot, C. F.: Dashboard Fractures of the Patella, Am. J. Surg. 44:139-144 (April) 1939.

circulatory embarrassment. At operation the transverse incision of the skin and fascia exposes the fracture and the tear in the capsule, which is usually extensive and which may reach to or beyond the collateral ligaments. In the early cases we do not operate with a tourniquet, as the skin vessels can be controlled by hemostats and as a rule there is little, if any bleeding from the torn capsule. If bleeding is encountered, it should be controlled by ligatures. If operation has been delayed, a tourniquet is used. If the operation is performed early, clotted blood is removed easily from the fimbriated edges of the torn capsule by irrigation. When the fracture fragments are removed, the patella ligament should be preserved. We feel that this can best be done by sharp dissection with the scalpel blade slanted toward the patella. All fragments, including those partially attached to the fragment which is to be preserved should be removed, as ischemic necrosis may develop in the loose fragments.

Before attempting closure of the capsule we remove all clots by thorough washing of the joint with physiological saline solution. Two grams of microcrystal sulfathiazole are placed in the last syringe of saline and are barbotaged thoroughly throughout the various crevices; this solution is allowed to remain in the joint. No additional sulfathiazole is used locally. The synovia should be sutured loosely before suture of the capsule is attempted. In clean cases black silk is preferable to catgut for suture material, as the latter may cause foreign protein reaction within the joint. Mattress sutures are used to close the capsule. They should be so placed as to get an accurate closure, but every effort should be made to avoid tension on the sutures. The lateral poles of the tear should be sutured first, and subsequent sutures should be placed on alternate sides until the lateral expansions are closed. Anatomical reapposition of the tendon fibers re-establishes normal alignment of the quadriceps pull and aids in the early return of quadriceps function. No drill holes for sutures are placed in the remaining fragment of the patella, as such holes may be the site of refracture. If there is extensive damage to the tendon overlying the patella, a strip of tendon can be turned down from the quadriceps and sutured to the patella tendon and to the tuberosity of the tibia[9]. The subcutaneous fascia and skin are closed with interrupted black silk sutures; the extremity is wrapped snugly with glazed cotton, and a thin plaster knee cage is applied. The plaster dressing adds to the patient's comfort and helps prevent postoperative hydrarthrosis. The cast should be removed at the end of seventy-two to ninety-six hours and an elastic bandage applied.

On the first postoperative day the patient is instructed in quadriceps "setting-up" exercise to prevent the loss of muscle tone and function. In our recent cases weight bearing with the knee supported by an anterior plaster splint is allowed at the end of one week. The splint is discontinued at the end of four to six weeks, depending on the progress in each patient. When practical, physical therapy in the form of passive and active exercise is used during the first few weeks of convalescence.

Comparison of Results

Our series of 62 cases of fracture of the patella contains 18 cases treated by the closed method, 29 cases treated by attempts at reapposition of the fragments, and 14 cases treated by excision of the least useful fragments. Chart 1 shows a comparison of the latter two groups, based on the average period of fixation, the length of time before weight bearing was allowed with protection and without protection, and the average range of motion present in the knee. The average period of protection when the fragments were reapproximated was ten weeks; only 2 patients had less than eight weeks of protection. The patients on whom excision of the least useful fragments was performed averaged six weeks of protection, and only 4 patients had more than seven weeks of protection. On the average patients with the patella repaired walked *with* protection at six weeks and *without* protection at twelve weeks; the excision cases walked *with* protection at the end of three weeks and *without* protection at the end of seven weeks. The average range of motion obtained was 74 degrees when the fragments were reapproximated and 110 degrees when partial excision was performed. There were 4 refractures in the reapproximated group. In addition to the advantages listed above which partial excision has over attempted repair, the patients have required less physical ther-

9. Dickson, J. A.: The Treatment of Fracture of the Patella, Cleveland Clin. Quart. 8:154-157 (July) 1941.

Chart 1.

	Repair of fracture	*Excision of fragments*
Average period of protection	10 wks.	6 wks.
Allowed to walk with protection	12 wks.	7 wks.
Allowed to walk without protection	6 wks.	3 wks.
Average range of motion	74.5°	110°
Number of refractures	4	0
Total number of cases	29	14

apy; they have been able to get about more easily during their early convalescence; they have had fewer complications such as traumatic arthritis, refracture, hypertrophied patella, and mechanical interference with the knee function; and they have had less postoperative pain.

Conclusions

The transverse incision is the incision of choice for operative treatment of fracture of the patella.

The least useful fragments should be excised and the patella tendon and capsule repaired.

Approximation and repair of the fragments should never be attempted in fracture of the patella.

Early weight bearing and active and passive exercise aid in early recovery.

THERAPY IN OLDER PATIENTS

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Because of the limited time at my disposal, this paper will be chiefly a discussion of general principles involved in caring for older patients, rather than an attempt to enumerate all the specific conditions which are common to old age.

Of prime importance is the avoidance of too radical changes in habits of eating, sleeping, and general hygiene. It is a biological law that old age is marked by involutional changes, and that the aging organism adapts itself less and less readily to great changes in environment or in habits of living. The adage, "You can't teach an old dog new tricks," was founded upon observation.

In the treatment of older patients it is often necessary, of course, to make changes in their usual routine; but such changes should be as gradual and as tactfully brought about as is consistent with one's professional judgment—and possibly one's self respect. This dislike of change is largely responsible for the dread of hospitals that so many of the aged have (although to many a stay in such an institution is a great and happy adventure). If approached tactfully and assured that their routine will be upset as little as possible, most elderly patients can be persuaded to go to a hospital. Then if the nurses and house staff are kind and considerate, they may have to be persuaded to leave when the time comes.

In this connection, it may be noted that the elderly stand surgical operations comparatively well. It is really not humane to allow an old man to wear a truss or an old woman to suffer the consequences of a prolapsed uterus, when either condition could be easily and safely relieved. One of the most cruel mistakes that can be made is to let the senescent patient feel that nothing can be done because he is old.

The diet of the older patient both in disease and in normal health should be supervised to insure an adequate intake of vitamins and minerals. If, because of defective teeth or poor appetite or even pure whim, the diet is not properly balanced, the deficiency should be supplied by vitamin concentrates. Most older patients like to take medicine anyhow, and concentrated vitamins are better than placebos. There is real danger of an old patient's becoming a victim of avitaminosis, particularly if he has always been a dietary faddist.

One important point is to caution the individual at middle age or beyond against excess fat. The consequences of obesity need not be stressed. Weight should not be lost too quickly, however.

In the two extremes of life the digestive tract is of major importance. Most of the older generation were brought up to believe in the virtue of "moving the bowels" early and often. It is seldom necessary to prescribe laxatives for these patients; they usually do that for themselves. Too many of them learn to regard a large bowel movement as an absolutely essential prelude to a successful day. Most of the older generation would not consider relinquishing their laxatives; but at least we can remind them of Hippocrates' advice to "use purgative medicines . . . not without proper circumspection."

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Read before the American Geriatrics Society, Atlantic City, June 11, 1942.

(Aphorism 24). Some observant wit has described the three ages of man as: (1) when he boasts of the pretty girl he dated the night before; (2) when he boasts of the good dinner he ate last night; and (3) when he tells everyone of the good bowel movement he had this morning.

It has been demonstrated clinically and in the laboratory that the curve of hydrochloric acid usually decreases with age, and that after 60 there is often complete achlorhydria. Dilute hydrochloric acid in doses of one-half to one teaspoonful before or with meals is one of the most useful prescriptions for the elderly patient. A little nursing trick worth knowing is that this acid can be given in tomato juice as a cocktail, with decided improvement in the taste of both tomato juice and acid. It also blends well with buttermilk and with grapefruit or orange juice.

It is generally recognized that the old sleep lightly and require less sleep than in earlier life: "And he shall rise up at the voice of the bird."[1] Sedatives are often necessary in older patients, but should be used cautiously —as, indeed, they should be at any age. Often the effect of the hypnotics in older patients is the opposite of that desired—particularly when cerebral arteriosclerosis is present. A wakeful night followed by a morning of mental confusion may result from their use. It is often necessary to try out a number of sedative drugs before a suitable one is found. It has long been accepted that the elderly tolerate opiates badly, although in the dyspnea of cardiac failure small doses of morphine may be life-saving. An old fashioned remedy often forgotten is hyoscine. This either works like a charm or makes the patient temporarily wild; it seems to work best in the patients who tolerate opium badly.

Although there is some difference of opinion on the subject, I hold with those who consider alcohol a blessing for the aged. Its food value may or may not be an advantage; but it usually has a sedative effect, and is perhaps the most satisfactory vasodilator that we have. Most of us would probably agree with Harlow Brooks's statement[2] that "Alcohol properly administered is one of the greatest blessings of old age."

So far as I know, there is no valid reason why older patients, even those with hypertension, should be deprived of coffee and tea, unless they interfere with sleep. Indeed, their vasodilator effect may be beneficial. Tobacco may also be permitted, except for the rare individual who is afflicted with one of the vasospastic disorders; and he may be consoled by the substitution of alcohol as the vasodilator *par excellence.*

The question of exercise for the old could be the subject of a round table discussion in itself. Certainly, however, there can be little argument for strenuous exercise after 50. Even golf, generally considered the ideal recreation for the mature and old, can be overdone if taken too seriously. Light setting-up exercises which employ chiefly the trunk muscles may be beneficial. It may be apropos to recall that during the first World War the famous athlete, Walter Camp, boasted that he kept President Wilson's cabinet in prime condition by drilling them in his so-called "Daily Dozen" exercises. One member of the cabinet steadfastly refused to take these exercises. He was Josephus Daniels, who recently celebrated his eightieth birthday by writing his usual vigorous editorials for his newspaper, the *News and Observer.* All the other members of the cabinet are dead, and Walter Camp himself died at the age of 66.

Although too much exercise may be dangerous, it is generally recognized that an old patient should not be kept in bed any longer than is absolutely necessary after an illness or an operation. There is danger of hypostatic congestion which may easily lead to fatal pneumonia. The hazard of vascular thrombosis is much greater than in younger individuals. Even if he escapes these evils, an old patient who is kept in bed too long is apt gradually to lose interest in life; his appetite fails in spite of tonics; and he may slip away so imperceptibly that it is hard to know when the loosing of the silver cord began. Many an old patient has died days after the crisis of pneumonia — when a younger patient would have been rapidly convalescing. Recently Paul White has stated that he does not keep his older patients in bed after coronary occlusion more than three or four weeks, although formerly he advocated six to eight weeks of bed rest.

The Smith-Petersen nail has been a life saver for the elderly patient by shortening the period of inactivity after a broken hip.

1. Ecclesiastes, 12:4.
2. Brooks, Harlow: The Use of Alcohol in Old Age, in Emerson, Haven: Alcohol and Man, New York, The Macmillan Co., 1939, p. 162.

The endocrines have been a great boon to the aging, and will probably fill an increasingly large and useful place. As our knowledge of them becomes more sharply defined, their use will become more scientific and less empirical, and their abuse will be abated. Victor Hugo has said that "Forty is the old age of youth; fifty is the youth of old age." If we accept this statement, then the menopause is the very beginning of old age for most women, and the estrogens must be given first place among the endocrine preparations. Even long after the actual cessation of menstruation many women suffer from what Werner has called the delayed menopause, and such patients may be given a new lease on life by the use of an estrogen. While men may occasionally suffer from involutional melancholia and be benefited by injections of the male hormone, such cases are rare compared to the number of women who need treatment.

In dealing with the aged, it is of the utmost importance to be sympathetic but not sentimental. Stuart Chase, in THE ROAD WE ARE TRAVELING, expressed a profound truth when he said: "Man is a working animal, as any biologist will tell you. They want to *belong*: to feel that they are a part of a living community, that they have a place in it which other people recognize." Many of the most unpleasant traits of adolescence are due to the desire, conscious or subconscious, on the part of the youngster to make a place for himself in the community, and to be recognized as belonging. Just so, many of the most unpleasant traits of the elderly are due to the desire to continue to belong, and to hold to a place in the community. Every normal human being, young or old, wants to feel that he has a definite place in the world, and that he is important. As long as an old man is capable of continuing his occupation, he is happier if allowed to do so. Even after the age of retirement is reached, and he is compelled to relinquish the job to some younger individual, a definite task or tasks around the house should be assigned him, and he should be made to feel that he is needed for that particular job. The natural tendency of the old to become egocentric is greatly increased in the one who has not prepared for old age by cultivating a number of outside interests, and who has nothing to do but to sit and think about himself.

If it becomes necessary for economic or other reasons for an old couple or widowed mate to live with a younger family, it may be necessary to let it be known at the beginning that such an arrangement must not disrupt the happiness of the family. Even if feelings must be wounded, the member of the older generation should not be allowed to come between husband and wife or between parents and children. The old man or woman too senile to see the reasonableness of this position would probably be just as happy in a home for the aged.

Dr. James B. Watson, who for two years was connected with the Worcester State Hospital, recently told me of an interesting observation he had made there. Two old men, virtually the same age, who were patients in the hospital, died on the same day. One of them had been cheerful and contented. His mind was clear, and he was a general favorite with the hospital staff. The other patient had had all the characteristics of senility. Dr. Watson performed the autopsies on both patients. To his surprise, the brain of the first patient showed much more degenerative change in the arteries than did that of the second. Dr. Watson said that the pathologist at the hospital told him that he had found that mental changes could by no means be correlated with organic changes in the brain. The man who possesses a well integrated personality, who takes life philosophically, and who makes an effort to keep interested in current events is apt to keep his mental ability to a far greater degree than is the one whose interests are narrowed. The lesson to be drawn from this is obvious.

Summary

1. The habits of the old should not be changed too rapidly or too drastically.
2. An adequate diet should be maintained, but excessive weight avoided.
3. The abuse of laxatives should be discouraged.
4. Hydrochloric acid is often useful.
5. The use of sedatives, alcohol, coffee and tobacco in moderation may be beneficial.
6. Exercise should not be overdone.
7. Prolonged bed rest may be dangerous to older patients.
8. The endocrines, especially the estrogens, are often helpful.
9. The best preparation for old age is the cultivation of a variety of interests.

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SEPTEMBER, 1943

VACATIONS IN WAR-TIME

An article which struck a responsive chord in the editorial breast was the "Vacation Piece" which Bernard DeVoto wrote for the August issue of *Harper's*. Apparently sensing the nostalgia with which civilian minds are turning to thoughts of the little cabin in the pines or at the seashore or in the mountains, which seems now so far removed by reason of gas rationing, crowding of public transportation facilities, and the pressure of work, and perhaps realizing the slight sense of guilt which accompanies those who have had the courage to take a much-needed vacation from a burden made many times heavier by added war-time responsibilities, Mr. DeVoto, in his August "Easy Chair", defended the necessity for vacations, even in war-time, and verbally chastised those of his columnist colleagues who profess to be alarmed by "the public's insistence on having a good time." The reaon for this attitude on the part of the columnists is, according to Mr. DeVoto, "civilian frustration", brought on by the feeling that if one is a civilian not engaged in a war industry, one has no part in the war effort. "Even in a columnist's life there come moments when the importance to the war of one's notions about the invasion of Europe seem to be no greater than that of a bank teller's cashing of a housewife's check—and the frustration heaves and ferments. On realistic grounds one feels miserable and so, on somewhat less realistic grounds, one commands the public to feel miserable."

Mr. DeVoto reminds his columnist colleagues that "we lost one peace because idealism and dedication tend to get brittle from prolonged strain; that this time it would seem best to keep them supple, and the free use of the pleasure principle may help." To the civilian public, longing for the mountains, the sea, or the old swimmin' hole, he says encouragingly: "If you get a chance to drop the Royal Coachman just below the ripple, do so with a clear conscience, for you will not be betraying anyone. The hope is that we may save such things from the world that has been shattered, even that we may make them commoner and more certain, and you do no evil by holding to them now. . . . It is, after all, desirable for even civilians to last out the war."

By the time this JOURNAL goes to press, Labor Day will be over, and the period of greatest stress for public transportation facilities will have passed. Every doctor who has not had at least ten days away from the telephone and from the urgent demands of a war-time practice should profit by Mr. DeVoto's advice and go somewhere where he can find relaxation and pleasure. It is, after all, desirable for even civilian doctors to last out the war!

THOSE DRAFT REJECTION FIGURES

There must be something particularly intriguing about the fraction "one third". The changes have been rung over and over again upon our President's appeal for the submerged one third of our population who are ill fed, ill housed and ill clothed. At the Raleigh meeting of our State Medical Society, Governor Broughton bemoaned the high proportion of North Carolinians who have been rejected for military service because of physical defects, and pled eloquently for improvement in our public health program, since "from the standpoint of the nation's safety we cannot progress with a population only two-thirds fit."

The high number of draftees rejected for various causes is being exploited for all it is worth by those who would have the politicians take over the practice of medicine. Before we accept the figures at face value, however, we should be sure of their real significance[1]. First, it should be recalled that the figures quoted are rejections for *unlimited* military service, and that more than half of those reported as rejected were found fit for *limited* military service. Only those who can stand up to the most gruelling punishment are chosen for unlimited military service. It has been pointed out—but overlooked by the social reformers—that "The standards by which our armed services pick and choose are the highest in the world; and a large percentage of those rejected on physical grounds here would be considered acceptable in nearly every other country."[2]

Another fact usually overlooked is that 10 per cent of those rejected fail because of deficient education. Other principal causes of rejections are defects of teeth and eyes, abnormalities of height and weight, flat feet, and perforated ear drums. That rejection for military service does not necessarily imply absolute decrepitude is shown by the fact that two of Carolina's greatest basketball players, Glamack and Nagy, were both turned down by the army, while George Stirnweiss, although not wanted by Uncle Sam, manages to hold down the regular shortstop position with the New York Yankees.

Another fact not mentioned by the prophets of gloom is that the records show the average soldier of this army to be a decidedly huskier physical specimen than was his father in the first World War.

It is perhaps beside the point, but nevertheless of interest, to recall that many of our greatest military heroes—including George Washington and Andrew Jackson — would not have made the grade in our army today.

The Metropolitan Life Insurance Company has aptly said[3]: "It is evident, then, that great caution must be used in drawing conclusions from the crude statistics of physical defects disclosed by the Selective Service examinations, and in comparing them with World War figures. The data do not in any way support assertions that there has been deterioration in our national health. Even where comparative data show improvement, they fall far short of measuring its amount. Actually, the causes of most rejections today for military service do not seriously impair the individual for ordinary civilian occupations, nor do they have markedly adverse effects on his health and longevity . . .

"A good indication of the greater strictness of selection for military service today is that the rejection rate is far higher than in the selection of risks for ordinary life insurance."

No one would claim, of course, that we have yet arrived at a medical Utopia where all our population are perfect physical specimens; but let us not be stampeded into thinking that health conditions in the United States are inferior to those of any other country in the world, or that the health of our people would be materially improved if politicians took over the practice of medicine.

1. A study of the rejection figures by Dr. W. W. Bauer was published in the *Pennsylvania Medical Journal* for December, 1942. A reprint will be sent any one interested enough to write the author, at 535 North Dearborn Street, and ask for one.
2. Wright, Kenneth: Up to Date, Chicago Sun, Dec. 23, 1941.
3. Physical Fitness of American Youth, Statistical Bulletin, Metropolitan Life Insurance Co., Vol. 22, No. 6, June, 1941.

* * * *

MEDICAL FEES UNDER POLITICAL CONTROL

The Wagner-Murray-Dingell bill provides that "Payments from the Trust Fund to general medical practitioners, for services under this title shall be made (A) on the basis of fees for services rendered to individuals entitled to benefits, according to a fee schedule approved by the Surgeon General; or (B) on a per capita basis . . . ; or (C) on a salary basis, whole time or part time; or (D) on a combination or modification of these bases, as the Surgeon General may approve."

It seems pertinent, therefore, to estimate, if possible, the value put upon a doctor's services by the federal government. An indication of this may be found in the 1935 volume of the TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA, pages 32 to 34. In the minutes of the Executive Committee meeting held on March 9, 1935, at the Sir Walter Hotel in Raleigh, there is recorded the report of a committee appointed to confer with the FERA. (It may be recalled that these letters stood for the Federal Emergency Relief Administration.) The state administrator of this organization had been authorized to have all employables examined. For the purpose an elaborate blank had been prepared, which included a urinalysis and Wassermann test. For making this examination—which all who saw it agreed was equivalent to a regular five-dollar insurance examination—the doctor was to be paid the munificent sum of fifty cents.

Dr. McBrayer told the Executive Committee that he asked the administrator if the fifty cents was for the clerical work, and said that he would like to know what the doctor was to get. He was informed that the half dollar would have to pay for professional ability as well as for clerical work. The Executive Committee unanimously voted to decline the offer.

This tangible evidence of the estimate placed upon medical skill by politicians should strengthen our determination to keep American medicine free from political domination.

* * * *

"FACTS FROM ENGLAND"

The following editorial from *The Scottish Chief*, published at Maxton, North Carolina, gives the reaction of an intelligent layman to certain aspects of compulsory health insurance. If these facts were understood by a greater portion of the public there would be a widespread and vigorous protest against such plans as those proposed in the Wagner-Murray-Dingell Bill.

"A few facts from England eloquently tell the story of compulsory health insurance. Under the British system of health insurance a physician has a panel of 1,000 to 2,500 patients at $2.25 each per year. He may have to see 100 patients a day. Frequently as many as 60 persons must be seen in his office in two hours—two minutes per patient, including paper work. There is no time for adequate treatment. If a panel physician keeps patients waiting too long, they report him to his superiors. Unlike American physicians, the panel physician in England rarely has the time or the energy to study, engage in research, attend medical meetings or take refresher courses.

"It is easy to see why doctors oppose schemes to emasculate the American medical system. It has its shortcomings, but fundamentally it is the most efficient, far-reaching system yet devised. Infinitely more important, it is a system which inspires initiative and progress. Within its framework doctors are free individuals. Tomorrow, next week, next year, as the future rolls into the present, new techniques and new cures will come from the imaginative, probing minds of American medical men. It would be calamitous to freeze medicine into a compulsory socialistic mold that would kill the souls of these men."

* * * *

DR. ARTHUR THOMAS McCORMACK

Dr. Arthur Thomas McCormack of Louisville died of an acute heart attack on August 7. He was born at Howard's Mill in Nelson County, Kentucky, August 21, 1872. Dr. McCormack was State Health Commissioner of Kentucky, Secretary of the Kentucky State Medical Association, and Editor of its *Journal*. He was President of the Southern Medical Association 1939-1940 and at the time of his death was a member of its Board of Trustees. Dr. McCormack has been a fine friend of the Southern Medical Association and of organized medicine over the years.

Dr. McCormack has been honored by many medical and lay organizations. He has been President of the American Public Health Association, of the Conference of State and Provincial Health Authorities of North America, of the Medical Veterans of World War, and of the Association of Military Surgeons. He was in World War I, serving as Chief Health Officer of the Panama Canal zone, being sent to Panama by General Gorgas when he (Gorgas) was made Surgeon General.

Dr. McCormack succeeded his father, the late Dr. J. N. McCormack, as the State Health Commissioner in 1912. Dr. J. N. McCormack organized the state health work in Kentucky sixty-four years ago and he and his son, Dr. Arthur, have been continuously in charge of the State Health Department of Kentucky for those sixty-four years.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

BOWMAN GRAY SCHOOL OF MEDICINE
OF WAKE FOREST COLLEGE

A 52 year old male was admitted to this hospital on January 6, 1943, complaining of pain in the chest.

He had been well until about six months before admission, when he had an attack of pain beneath the upper portion of the sternum that was associated with a choking feeling in the lower part of his neck. For several weeks previous to this attack he had had mild substernal distress on effort. During the attack there was slight fever and leukocytosis for two or three days. The blood pressure increased somewhat during the attack, but subsequently never fell below its usual level. Minimal electrocardiographic changes appeared after about ten days. The day after the onset of the pain a barely audible diastolic murmur was heard along the left sternal border, but this murmur later disappeared. After a six weeks' period of bed rest there was a thoroughly satisfactory recovery, and when he was seen three months later the patient was at his usual work and entirely free of pain.

For about two weeks prior to admission he had been under rather severe mental stress, but was otherwise well until three days before admission, when during the night he noted a very slight feeling of substernal pressure. On the evening before admission, while attending a meeting, he was seized with a moderately severe feeling of pressure in his chest which rapidly radiated down into the mid-abdomen. This pain rapidly increased in severity so that within half an hour he had to be given morphine, which gave him fairly prompt relief. Later the same night he awoke with a similar discomfort in his chest, but the abdominal pain had disappeared. Another injection of morphine was required to relieve the pain.

There was a history of adequately treated syphilis.

Physical examination showed a well developed and well nourished male in no acute distress. The skin was cold, clammy and cyanotic. The pupils were constricted as a result of the morphine. The cervical veins were not distended. The lungs were clear. The heart rate was 118, the rhythm regular. The heart was enlarged to the left, the point of maximum impulse being felt 4 cm. outside the midclavicular line in the fifth interspace. There was a well marked gallop rhythm, the third component of the gallop being the loudest. No friction rub or murmurs were heard. The blood pressure was 218-230 systolic, 130 diastolic. The pulse was paradoxical by about 12 mm. There was some prominence in the epigastrium, but no mass could be felt. The liver was not enlarged. There was no edema of the extremities.

Laboratory data were non-contributory.

In the early evening of the patient's first hospital day a moderately loud diastolic murmur was heard along the left sternal border. The blood pressure at this time was 210 systolic, 120 diastolic. About an hour later a fairly loud systolic murmur to the right of the sternum was heard in addition to the diastolic murmur. On the morning of the second hospital day both murmurs had disappeared. After three days in the hospital he again began to complain of slight pain in the substernal and precordial regions. This pain was usually quite mild, but on two occasions was severe enough to require opiates for relief. The pain was described as a feeling of pressure; it did not radiate, and was not related to respiration.

During this period the heart sounds had a scratching quality, and on one occasion a well marked friction rub was heard. This was not constant. On the evening of the fifth hospital day the patient complained of substernal pain which radiated up into the neck and head. Shortly after this there was a fall in blood pressure from the usual level of 200 systolic, 130 diastolic to 140 systolic, 50 diastolic, with reappearance of a loud diastolic murmur. The heart rate increased to 160, but remained regular. The patient became dyspneic. Shortly thereafter, he was found to be in acute pulmonary edema. He was given morphine, put in an oxygen tent, and given 3 cat units of digitalis intravenously. He had had 9 cat units during the preceding three days. There was prompt relief from the attack of pulmonary edema and on the following morning, except for some pallor and weakness, and the fact that his blood pressure still remained at the lower level, he seemed much improved. Two hours later his

body suddenly stiffened, and within a few seconds breathing ceased and heart sounds were inaudible.

Discussion

DR. WILLIAM DOCK: The initial illness apparently was a typical myocardial infarct due to coronary occlusion, without any classical electrocardiographic changes. These are absent if the infarct does not involve the sub-epicardial tissue or the main branches of the His bundle. The diastolic murmur might have been due to a rise in blood pressure and consequent stretching of the aortic ring. The prodromal symptoms are not rare in myocardial infarction, and are rare in dissecting aneurysms. Since there was no back pain and no loss of carotid, brachial or femoral pulses, there is nothing about this attack to suggest a dissecting aneurysm or hemorrhage into a mediastinal tumor.

The second episode again was ushered in with prodromal pain. The history of syphilis is not important if, in fact, he never had a positive Wassermann or if he was treated during the secondary stage and constantly was seronegative after treatment. Syphilis does not predispose to dissecting aneurysm, but may cause coronary occlusion by gumma blocking the orifice.

On physical examination there was no sign of congestive failure, pulmonary infarction or aneurysm. Marked hypertension and gallop rhythm mean that heart failure impends, however. The paradoxical pulse suggests that fluid was present in the pericardium; if there were a large amount the cervical veins should have been distended.

The x-ray showed some dilatation of the ascending part of the aorta, with a large heart, but no syphilitic aneurysm and no evidence of massive pericardial effusion. The findings in the blood and urine add nothing to the diagnostic possibilities.

The fact that murmurs came and went makes one think of ulcerative forms of bacterial endocarditis, but nothing about the history or the other findings fits in with this possibility. The friction rub and even some changes in sound interpreted as murmur might occur with myocardial infarct. In this case there almost certainly would have been typical electrocardiographic evidence, for this was a second bout and the sub-epicardial layers would have been involved. Such changes apparently were not recorded.

Finally the pressure fell and a loud diastolic murmur appeared. When the septum ruptures after myocardial infarction, loud systolic murmurs occur; but it is difficult to see how the diastolic murmur can be explained except by ulceration of the valve or by a dissecting aneurysm. The bout of pulmonary edema and recovery are more likely to occur with ulceration of the aortic valve. Since the patient had no back pain and no change in pulse, dissection of the aorta had not proceeded around the arch. The sudden death could occur either from rupture of an infarct or by dissection into the pericardium. The latter explanation seems more probable, since it accounts for the murmurs and the absence of classical electrocardiographic changes. Presumably oozing into the pericardium caused the friction rub and paradoxical pulse.

While the initial episode may have been an infarct of the heart, it is possible that there was a dissection of the ascending aorta, with healing, and that later a new splitting began, which progressed in several stages to rupture.

Dr. Dock's Diagnosis

Dissecting aneurysm of the aorta, with rupture into the pericardium but little or no extension beyond the arch.

Anatomical Discussion

DR. ROBERT P. MOREHEAD: The postmortem examination was limited to the thorax. The pericardial sac was filled with blood. The heart was enlarged and showed concentric hypertrophy of the left ventricle. A dissecting aneurysm had divided the aorta into two distinct lamellae throughout its extent. A point of rupture was demonstrated in the outer lamella at the beginning of the vessel, and this accounts for the hemopericardium with resulting cardiac tamponade. Two centimeters above the aortic ring the internal lamella was completely severed.

The most interesting finding in this case was an incomplete aortic tear with healing located 8 cm. above the aortic ring. This readily explains the initial attack of substernal pain six months prior to admission. The healed tear is clearly seen in figure 1.

Microscopically the usual cystic degenerative changes, which have been described and emphasized by Endheim, were seen.



Fig. 1. The point of rupture is seen above the aortic valve. The point of incomplete rupture with healing is seen just above and to the right of this.

In summary, we are dealing in this case with a patient who suffered from hypertension with degenerative aortic lesions which resulted in a dissecting aortic aneurysm. This was followed by incomplete rupture of the aorta with healing and finally by complete rupture into the lumen of the vessel and incomplete rupture into the pericardial sac.

Anatomical Diagnosis

1. Concentric cardiac hypertrophy.
2. Medionecrosis aortae idiopathica cystica.
3. Dissecting aortic aneurysm.
4. Incomplete rupture of the aorta with healing.
5. Complete rupture of the internal lamella of the vessel.
6. Incomplete rupture of the external lamella into the pericardial sac.

MEDIOCOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Workmen's Compensation: If one employee assaults another, and the assault is incidental to some duty of the employment, the injury suffered thereby may properly be said to arise out of the employment and is compensable.

This is an account of a proceeding under the Workmen's Compensation Act to determine liability of defendants, a garage company, to a surviving widow and minor son of a deceased employee.

The deceased and another man were employed by the above mentioned garage company, the former as a mechanic and the latter as helper, and from the records we find that it was a custom in this particular shop for the workers and employees to furnish their own tools, or at least part of them. It was also a custom between the two men to borrow each other's tools, a practice which was known to the manager of the defendant company. It was also noted that the deceased had a box of tools, and that the helper only had two or three tools that he used; therefore he frequently borrowed tools from the deceased to perform his work.

A few days prior to May 23, 1940, the deceased had become tired of allowing the helper to use his tools, and was keeping his tools in a tool box equipped with a lock. On May 23, 1940, about 2 or 3 p.m., the deceased was working on a car in the garage of the defendant, and the helper was working on a car nearby. In the course of their work the helper passed by the tool box belonging to the deceased and remarked to him, "You had better lock your tool box; you usually do." The deceased replied that it was his tool box, and that he would lock it if he wanted to. As a result of the feeling engendered between the men in borrowing the tools, immediately after the exchange of words, and while on the premises of the defendant company, and while about the duties of their employment, the helper struck the deceased in the back of the head either with his fist or with some object, and fractured his skull, which blow caused death within a period of a few hours.

The Industrial Commission found that the injury sustained by the deceased arose out of and in the course of his employment, and as a consequence the Commission awarded compensation. This award was affirmed on appeal to the Superior Court. From this latter ruling, the defendant appealed to the Supreme Court, and assigned error.

The Supreme Court in considering this case stated that in the event of injuries caused by assault the rule is that if one employee assaults another solely from anger, hatred, revenge, or vindictiveness, not growing out of or as an incident to the employment, the injury is to be attributed to the voluntary act of the assailant, and not as an incident of the employment, but if the assault be incidental to some duty of the employment, the injuries suffered thereby may properly be said to arise out of the employment.

But for the custom or practice of borrowing tools in the plant, the incident here in question might not have occurred. Hence it is permissible to infer that the injury by accident which resulted in harm to the employee arose out of the employment as an incident to the method of carrying on the work in

the shop. It is clear, the Court stated, that it occurred in the course of employment. As a consequence the Supreme Court affirmed the award of compensation originally made by the Industrial Commission. (N. C. Supreme Court, Vol. 222, Page 25. Decision rendered Fall Term, 1942.)

CORRESPONDENCE

Maternity and Infancy Care Program for Wives and Babies of Service Men

August 6, 1943

Dr. Wingate M. Johnson, Editor
North Carolina Medical Journal
Winston-Salem, N. C.

Dear Dr. Johnson:

I am aware that there has been considerable speculation and misunderstanding on the part of some physicians and hospitals in North Carolina in regard to the emergency maternity and infancy care program for wives and babies (under 1 year of age) of service men. This program is now running in a very satisfactory manner, most of the difficulties having been eliminated by this time. For that reason I feel that it would be wise, if you so desire, to include some information about this program in the **North Carolina Medical Journal** so that all of the physicians in the state may be properly informed about it.

Congress, on March 18, 1943, passed the first appropriation bill providing money for this program and authorized the United States Children's Bureau to administer these funds through the maternal and child health service of the state boards of health. The Children's Bureau, of course, has laid down certain basic rules and regulations for this program, and these have been followed as closely as possible here in North Carolina.

A physicians' advisory committee was appointed, consisting of: Dr. Hubert B. Haywood of Raleigh, chairman; Dr. J. Street Brewer, Roseboro; Dr. A. S. Root, Raleigh; Dr. A. H. London, Durham; Dr. J. G. Raby, Tarboro; Dr. Ballard Norwood, Oxford; Dr. Oren Moore, Charlotte; Dr. Paul W. Johnson, Winston-Salem; Dr. W. I. Wooten, Greenville; and Dr. Henry G. Turner, Raleigh. This committee was of invaluable assistance in making certain recommendations to the United States Children's Bureau in regard to the fee schedule now in effect for North Carolina. I am enclosing a copy of this schedule.

A hospital advisory committee was also appointed to make recommendations regarding payment for hospital care of these patients. This committee is made up of the following members: Mr. E. T. McKeithen, Moore County Hospital; Miss Grace Cordon, Columbus County Hospital; Dr. Harry L. Johnson, Greensboro; Mr. J. R. McLeod, Thompson Memorial Hospital, Lumberton; Dr. W. I. Wooten, Pitt General Hospital; Mr. C. I. Flath, Charlotte Memorial Hospital; Mr. J. L. Melvin, Park View Hospital, Rocky Mount; Mr. Claude F. Gaddy, Rex Hospital, Raleigh; Dr. J. B. Whittington, City Hospital, Winston-Salem; Dr. Fred Hubbard, Wilkes Hospital; Mr. F. R. Porter, Duke Hospital; Mr. Harold L. Bettis, Shelby Hospital; Mr. Sample B. Forbus, Watts Hospital, Durham; and Mr. George P. Harris of the Duke Endowment, Charlotte. In accordance with the recommendations of this committee and by approval of the United States Children's Bureau, each hospital which is participating in this program is to be paid at their actual **per diem** ward cost rate for this service. This **per diem** ward cost rate is calculated on the basis of a memorandum given to the Children's Bureau by the American Hospital Association. Again, I would like to express my thanks to the members of this committee for their splendid help and cooperation with this program and my appreciation to those hospitals which are now participating in this program. These hospitals are:

Good Samaritan	Charlotte
Lincoln Hospital	Durham
St. Joseph's Hospital	Asheville
Duke Hospital	Durham
Baptist Hospital	Winston-Salem
Shelby Hospital	Shelby
Rex Hospital	Raleigh
Haywood County Hospital	Waynesville
Watts Hospital	Durham
Edgecombe General Hospital	Tarboro
Lowrance Hospital	Mooresville
Rutherford Hospital	Rutherfordton
Granville Hospital	Oxford
Parrott Hospital	Kinston
Marion General Hospital	Marion
Angel Hospital	Franklin
Harnett County Hospital	Dunn
Charlotte Memorial Hospital	Charlotte
Mercy Hospital	Charlotte
Rocky Mount Sanitarium	Rocky Mount
Lee County Hospital	Sanford
Rowan Memorial Hospital	Salisbury
Randolph Hospital	Asheboro
Asheville Mission Hospital	Asheville
Memorial General Hospital	Kinston
Park View Hospital	Rocky Mount
St. Luke's Hospital	Tryon
U. S. Naval Hospital, Family Unit	New River
Aston Park Hospital	Asheville
Pitt General Hospital	Greenville
Thompson Memorial Hospital	Lumberton
Burrus Memorial Hospital	High Point
Gordon Crowell Memorial Hospital	Lincolnton
Wilkes Hospital	North Wilkesboro
Roanoke Rapids Hospital	Roanoke Rapids
Susie Cheatham Memorial Hospital	Oxford
Goldsboro Hospital	Goldsboro
James Walker Memorial Hospital	Wilmington
Cabarrus County Hospital	Concord
R. L. Pittman Hospital	Fayetteville
Community Hospital	Wilmington
Johnston County Hospital	Smithfield
Moore County Hospital	Pinehurst
Reeves Gamble Hospital	Lincolnton
Columbus County Hospital	Whiteville
Watauga Hospital	Boone
Laurinburg Hospital	Laurinburg
Ashe County Memorial Hospital	Jefferson
Good Shepherd Hospital	New Bern
Highsmith Hospital	Fayetteville
L. Richardson Memorial Hospital	Greensboro
Yadkin Hospital	Albemarle
Morehead City Hospital	Morehead City
Barnes-Griffin Clinic	Asheboro
Forsyth County Hospital	Winston-Salem
Grace Hospital	Morganton
Stanly General Hospital	Albemarle
Woodard-Herring Hospital	Wilson

It has been emphasized time and again that any qualified hospital in North Carolina may participate in this program. The only thing necessary is that a request be sent to me. I will immediately let them have all of the information necessary in order that they may be fully approved for this program. Unless a hospital is approved in this manner, of course no money can be paid to that hospital for care of these patients.

The persons who are eligible for this program are

the wives and babies (under 1 year of age) of service men in the 4th, 5th, 6th, and 7th grades. Wives and babies of enlisted men in the 1st, 2nd, and 3rd grades have also been made eligible for this program by a recent Act of Congress, in cases where circumstances require that such assistance be given.

Whenever possible, obstetric cases must be properly authorized well in advance of the date that the patient is to be delivered. In cases where the patient has not been seen until the date of her delivery or when she is admitted to a hospital as an emergency case in this manner, an authorization request must be filled in at once by the attending physician and submitted to the local health officer within twenty-four hours after delivery or after admission to the hospital. In this way, if the patient is otherwise eligible, she may be accepted as an emergency case. In cases where no authorization request is sent in until some time after the patient has been delivered, unless there are very unusual circumstances the case cannot be accepted under this program.

It must be emphasized that the Children's Bureau absolutely forbids any payments to be made for services which have been rendered **before the date that the patient is authorized by the State Board of Health.** Prenatal visits which have been given to the patient prior to the time of authorization cannot be paid for under this program, but the physician may of course make his own charges and arrangements with the patient for these unauthorized visits. All prenatal visits on and after the date of authorization of course should be included in the care paid for by the State Board of Health.

In pediatric cases, payment will be made only for patients under 1 year of age who are cared for in one of the participating hospitals. As it is usually impossible to send these authorization requests in in advance, the authorization request should be sent to the local health officer within twenty-four hours after the patient is admitted to the hospital. Initial authorization for hospitalization will be made for a period of fourteen days. If additional hospitalization is required, this will be granted if a request is made for such extension before the initial period of fourteen days has expired. The attending physician should include with his request for extension of time a short note of explanation telling why this further hospitalization is required.

When the patient is discharged from the hospital, the hospital should send to this office one of their regular hospital bills showing the hour and date of admission and discharge of the patient to and from the hospital. After delivery of the obstetric patient, the physician should give the patient adequate postpartum care, **together with a routine postpartum examination, from four to six weeks after the date of delivery.** The obstetric care blank which has to be filled in for every obstetric patient should not be sent in to the State Board of Health until after the postpartum examination has been given. The physician should indicate on the obstetric care blank **whether or not he has given a postpartum examination** and what his findings were at that time. When a pediatric case is discharged from the physician's care, a pediatric care blank should be filled in and sent in also. Both of these blanks should be sent in to the local health officer, who will in turn forward it to me. The serial number of the husband or father must be given on the blank. On receipt of this blank, a check will be issued to the physician and to the hospital for services rendered, to the physician in accordance with the fee schedule, and to the hospital in accordance with the agreement reached.

It must be emphasized that payment for cases cannot be made retroactive but that cases must be authorized in advance or in accordance with the regulations for emergency cases. Also, it is to be pointed out that this program is on a purely voluntary basis and that no one is compelled to participate in it, neither the patient, the physician or the hospital. I am glad to say that a majority of the physicians and hospitals in the state have felt it their patriotic duty to render this service to these patients, and I know that they will continue to do so gladly.

One very important point that must be brought out is the fact that the Children's Bureau absolutely forbids that the fees paid to the physicians or to the hospitals under this program be used as part payment. When a physician or a hospital accepts these fees for services rendered to the patient, he must agree to accept them as complete payment for the authorized case and not to accept any additional payment from the patient or other agency. If a patient goes into a hospital and wishes a private room or accommodations which are not provided under the terms of this program, it will be necessary for her to accept full responsibility for the total hospital bill.

I wish to thank again the physicians and hospitals who have been so kind and cooperative in helping make this program a success.

Yours sincerely,

G. M. Cooper, M.D.
Assistant State Health Officer

Schedule of Fees Authorized by U. S. Children's Bureau and Approved by the Technical Advisory Committee of North Carolina for Payment by North Carolina State Board of Health for Obstetric and Pediatric Services for the Wives and Babies of Service Men

1. For non-operative consultations, a fee of $5.00 for office or hospital consultation may be paid, and $10.00 for a home consultation or a consultation involving travel. These fees apply to obstetric, pediatric, surgical, and other medical consultations.

2. An operative fee of $45.00 may be paid to qualified consultants for major obstetric surgery and pediatric surgery.

3. No additional consultation fee may be paid to an obstetric consultant for a vaginal delivery, other than that mentioned in No. 1.

4. Qualifications needed for physicians to be classified as consultants shall be as follows: Specialists who are certified by their respective American Boards, or whose training and experience meets the requirements of such Boards shall be designated as consultants. Physicians who have had not less than one year of graduate training in their specialty and at least one year's experience in that specialty may be also designated as consultants. Consultant fees cannot be paid to any physician unless his qualifications are stated as above.

5. When a physician accepts a case under this program, additional payment for complications or for surgical treatment cannot be made to him, although those additional fees may be paid when necessary to another consulting physician if he qualifies as a consultant.

6. Obstetric care:

	General Practitioner	Specialist
Delivery with less than five prenatal visits and postpartum care	$25.00	$33.00
Delivery with five or more prenatal visits, and postpartum care	35.00	45.00

Prenatal care only—per visit	2.00	2.50
Maximum per case	10.00	12.50
Pediatric care: (Hospital cases only)		
For each hospital day	2.00	2.50
Maximum for the first week	10.00	12.50
Maximum for the second week	8.00	10.00
Maximum for the third week	5.00	6.50
Maximum for entire case	23.00	29.00

These fees are effective for cases authorized on and after July 1, 1943.

These fees paid to the physicians must be taken as complete payment for the case, and no fees may be accepted from the patients, or other agency, as a supplement.

BULLETIN BOARD

SECRETARY'S MESSAGE

POLITICS AND SCIENCE WILL NOT MIX

The worst storm in the history of American Medicine is in the making in Washington. Senate Bill No. 1161, better known as the Wagner-Murray-Dingell Bill, was introduced in Congress on June 3, 1943. The author of the bill is the same Senator Wagner of New York who gave us the law that "protects the rights of Labor" but denies the Boss even the right of free speech. The purpose of the Bill is to provide more Social Security, including Medical Care, and, as usual, it levies a tax—this time a whopper.

Senate Bill No. 1161, if enacted, will effect a revolution in medical practice and will put the Federal Government in virtual control of the practice of medicine as well as of hospitals. The Surgeon General of the United States Public Health Service will be the absolute Czar of American Medicine, empowered to provide free medical and hospital care for 110,000,000 people. He will control all hospitals and decide which ones can operate and how much can be charged. He will tell doctors where to practice, how many patients they may have, and what their charges must be. The bill generously permits the patient to choose his own doctor—provided that doctor does not already have his allotted number of patients.

THREE BILLION FORTY-EIGHT MILLION DOLLARS IS ALLOCATED FOR THE PURPOSE IN THE BILL.

Three billion forty-eight million dollars is a lot of money. It is enough to hire every doctor in America at a salary of $5,000.00 per year; to rent every bed in every privately-owned hospital every day in the year at the rate of $5.00 per day; to pay $2.50 per day every day in the year for each bed in Government-owned hospitals; and to spend over $250,000,000.00 for medicine and supplies and still leave a half billion dollars for political job holders.

Under the provision of the Bill, payments to general practitioners for services shall be made on (a) a fee basis, (b) a per capita basis, (c) a salary basis, or (d) a combination or modification of the bases such as the Surgeon General of the United States Public Health Service (The Dictator of American Medicine) may approve. Under this provision, all physicians in private practice shall pay a Social Insurance Contribution equal to 7 per cent of the market value of services in self-employment up to $3,000.00. This means that a physician who earns $3,000.00 or more in any calendar year will pay 7 per cent of $3,000.00 or $210.00. If his earnings are less than $3,000.00, he will pay 7 per cent of what he has earned.

The public must be served, it is true, and it is being served with the highest type of medical service in the world. If this system of Compulsory Medical Care is thrust upon us, it will destroy the highest standards of medical care and public health service in any large country in the world — those of the United States of America.

Particularly in the turmoil of war, I am unable to see the wisdom of introducing such a measure, especially when 50,000 to 60,000 of our young American physicians are fighting for the very existence of our great country. The American physician has always responded to every demand made upon him for any purpose for the betterment of American Medicine, for the betterment of the country, or for the furtherance of any worthwhile cause.

Is it true that the war is really being fought to preserve the American way of life? If so, shall we on the Home Front permit Congress to destroy one of the most vital elements that constitute this American way?

Now is the time for all physicians to assert themselves. I ask you to get in touch with your Senators and your Representatives in Congress. Get a copy of Senate Bill No. 1161. Study it. Act now or forever hold your peace.

News Notes From the State Board of Health

Dr. Carl V. Reynolds, State Health Officer, has given the green light for admissions to the venereal disease Rapid Treatment Center in Charlotte, which now is open and ready for the reception of patients.

In a letter of instructions to county health officers, through whom admissions will be channeled, Dr. Reynolds again emphasized two important points—namely, that treatment will be given absolutely without cost to patients, and that patients will be admitted from all sections of the state.

Addressing the local health officers, to whom those desiring admission to the Charlotte Rapid Treatment Center should apply, Dr. Reynolds said:

"You may mail applications direct to the Center at Charlotte, addressing your application to the Medical Officer in Charge, Rapid Treatment Center, Seventh and Church Streets, Charlotte.

"Patients to be admitted to the Charlotte Hospital will be of the following category:

"1. White and colored females will be admitted. No males will be admitted to Charlotte but will be admitted to Durham, where arrangements are under way for the opening of another Rapid Treatment Center.

"2. Syphilitic patients with primary, secondary or latent syphilis (if under 30 years of age) will be admitted. If over 30 years of age, patients will be admitted if there is a definite history of onset of untreated or inadequately treated syphilis within two years previously.

"3. Patients with gonorrhea, if treatment resistant or if point number 4 is involved, will be admitted. Patients with treatment resistant gonorrhea will be admitted to Durham only.

"4. Preference for admission will be given patients who are prostitutes, transients, uncooperative, or who for other reasons cannot be satisfactorily treated in local clinics.

"5. Patients with other venereal diseases, or who have syphilis or gonorrhea and do not fulfill above criteria, may be admitted by special permission of Medical Directors of the quarantine hospitals.

"6. Syphilitic patients sent to Charlotte will be given five-day treatment, unless other treatment schedule is indicated.

"7. Patients with gonorrhea (alone) will be admitted to Charlotte unless gonorrhea has proven to be treatment resistant.

"8. Syphilitic patients sent to Durham will be given ten-week treatment, unless other treatment schedule is indicated.

"These facilities are for use by your department and we would appreciate your helping us to build the census to its maximum as soon as it is possible to do so. Possibly this will relieve your clinic of much of its present load and we feel that you should have a very definite interest in the successful operation of these centers.

"Private physicians with patients who wish admission should make application to the Centers through their local health department. All applications of patients who voluntarily seek admission to Centers should come through the local health departments also.

"You should make application, giving the necessary identification data as to age, sex, color, stage of disease, amount and kind of previous treatment if such has been administered."

Regional Meeting of College of Physicians

A one-day meeting of the American College of Physicians for North Carolina will be held in Winston-Salem on October 29. The program for the afternoon session, to be held at the Bowman Gray School of Medicine, will consist of papers by Dr. T. W. Baker of Charlotte, Dr. W. B. Dewar of Raleigh, and Dr. Paul H. Ringer of Asheville, and a Clinico-Pathological Conference presented by Drs. Tinsley R. Harrison and Robert P. Morehead of the Bowman Gray School of Medicine. A dinner meeting will be held at the Robert E. Lee Hotel, at which Dr. W. B. Castle of Boston will be guest speaker. The complete program will be published in next month's issue of the **Journal.**

Wartime Graduate Medical Meetings For North Carolina

The program of Wartime Graduate Medical Meetings for military installations in North Carolina has recently been announced by Dr. Wingate M. Johnson, chairman of the committee for Region 6, which includes North and South Carolina. Other members of the committee are Dr. Paul F. Whitaker of Kinston and Dr. James C. McLeod of Florence, South Carolina. Dr. C. C. Carpenter of Winston-Salem has been named secretary and assisted in the organization of the program for North Carolina.

These meetings, sponsored by the American Medical Association, the American College of Physicians, and the American College of Surgeons, are being held for medical officers of military installations throughout the country. The program for North Carolina will be presented by members of the faculties of the Duke and Bowman Gray Medical Schools, beginning August 30 and continuing through October 6, and is as follows:

Schedule 1

Military Problems in Cardiovascular Diseases—Dr. Tinsley R. Harrison, Bowman Gray School of Medicine
Respiratory Diseases—Dr. David T. Smith, Duke University School of Medicine
August 30, 2:30 p.m.
Seymour Johnson Field—Cardiovascular Diseases
New River—Respiratory Diseases
August 30, 8 p.m.
Seymour Johnson Field—Respiratory Diseases
New River—Cardiovascular Diseases
August 31, 2:30 p.m.
Camp Mackall—Cardiovascular Diseases
Fort Bragg—Respiratory Diseases
August 31, 8 p.m.
Camp Mackall—Respiratory Diseases
Fort Bragg—Cardiovascular Diseases
September 1, 2:30 p.m.
Camp Butner—Cardiovascular Diseases
BTC#10, Greensboro—Respiratory Diseases
September 1, 8 p.m.
Camp Butner—Respiratory Diseases
BTC#10, Greensboro—Cardiovascular Diseases

Schedule 2

Fungus Diseases—Dr. Donald S. Martin, Duke University School of Medicine
Tropical Diseases—Dr. George Harrell, Bowman Gray School of Medicine
September 6, 2:30 p.m.
Seymour Johnson Field—Tropical Diseases
New River—Fungus Diseases
September 6, 8 p.m.
Seymour Johnson Field—Fungus Diseases
New River—Tropical Diseases

September 7, 2:30 p.m.
Camp Mackall—Tropical Diseases
Fort Bragg—Fungus Diseases
September 7, 8 p.m.
Camp Mackall—Fungus Diseases
Fort Bragg—Tropical Diseases
September 8, 2:30 p.m.
Camp Butner—Tropical Diseases
BTC#10, Greensboro—Fungus Diseases
September 8, 8 p.m.
Camp Butner—Fungus Diseases
BTC#10, Greensboro—Tropical Diseases

Schedule 3

Chemotherapy—Dr. Arthur Grollman, Bowman Gray School of Medicine
Ulcerative Diseases of the Gastro-Intestinal Tract—Dr. Julian M. Ruffin, Duke University School of Medicine
September 13, 2:30 p.m.
Seymour Johnson Field—Chemotherapy
New River—Ulcerative Diseases
September 13, 8 p.m.
Seymour Johnson Field—Ulcerative Diseases
New River—Chemotherapy
September 14, 2:30 p.m.
Camp Mackall—Chemotherapy
Fort Bragg—Ulcerative Diseases
September 14, 8 p.m.
Camp Mackall—Ulcerative Diseases
Fort Bragg—Chemotherapy
September 15, 2:30 p.m.
Camp Butner—Chemotherapy
BTC#10, Greensboro—Ulcerative Diseases
September 15, 8 p.m.
Camp Butner—Ulcerative Diseases
BTC#10, Greensboro—Chemotherapy

Schedule 4

Shock, Burns and Plasma—Dr. Keith Grimson, Duke University School of Medicine
Traumatic Surgery of the Chest and Abdomen—Dr. H. H. Bradshaw, Bowman Gray School of Medicine
September 20, 2:30 p.m.
Seymour Johnson Field—Traumatic Surgery
New River—Shock, Burns and Plasma
September 20, 8 p.m.
Seymour Johnson Field—Shock, Burns and Plasma
New River—Traumatic Surgery
September 21, 2:30 p.m.
Camp Mackall—Traumatic Surgery
Fort Bragg—Shock, Burns and Plasma
September 21, 8 p.m.
Camp Mackall—Shock, Burns and Plasma
Fort Bragg—Traumatic Surgery
September 22, 2:30 p.m.
Camp Butner—Traumatic Surgery
BTC#10, Greensboro—Shock, Burns and Plasma
September 22, 8 p.m.
Camp Butner—Shock, Burns and Plasma
BTC#10, Greensboro—Traumatic Surgery

Schedule 5

Neurosurgery—Dr. Everett O. Jeffreys, Bowman Gray School of Medicine of Wake Forest College
Neurology—Dr. Robert Graves, Duke University School of Medicine
September 27, 2:30 p.m.
Seymour Johnson Field—Neurosurgery
New River—Neurology
September 27, 8 p.m.
Seymour Johnson Field—Neurology
New River—Neurosurgery
September 28, 2:30 p.m.
Camp Mackall—Neurosurgery
Fort Bragg—Neurology
September 28, 8 p.m.
Camp Mackall—Neurology
Fort Bragg—Neurosurgery
September 29, 2:30 p.m.
Camp Butner—Neurosurgery
BTC#10, Greensboro—Neurology
September 29, 8 p.m.
Camp Butner—Neurology
BTC#10, Greensboro—Neurosurgery

Schedule 6

Orthopedics—Dr. Lenox D. Baker, Duke University School of Medicine
Psychiatry—Dr. E. A. MacMillan, Bowman Gray School of Medicine
October 4, 2:30 p.m.
Seymour Johnson Field—Psychiatry
New River—Orthopedics
October 4, 8 p.m.
Seymour Johnson Field—Orthopedics
New River—Psychiatry
October 5, 2:30 p.m.
Camp Mackall—Psychiatry
Fort Bragg—Orthopedics
October 5, 8 p.m.
Camp Mackall—Orthopedics
Fort Bragg—Psychiatry
October 6, 2:30 p.m.
Camp Butner—Psychiatry
BTC#10, Greensboro—Orthopedics
October 6, 8 p.m.
Camp Butner—Orthopedics
BTC#10, Greensboro—Psychiatry

CORRECTIONS

The name of Dr. John T. Saunders of Asheville, a member of the Buncombe County Medical Society, was unintentionally omitted from the Roster and Alphabetical List of Fellows in last month's issue of the **Journal**.

* * * *

Dr. Gustave Ulloth, a member of the Anson County Medical Society, has asked that his address be changed from Ansonville to Fletcher.

BOOK REVIEWS

A Study of Endometriosis, Endosalpingiosis, and Peritoneo-Ovarian Sclerosis. By James Robert Goodall, M.D., Former Professor of Clinical Obstetrics and Gynecology, McGill University. 140 Pages, 13 illustrations in black and white, and 17 color plates. Price, $5.50. Philadelphia: J. B. Lippincott Company, 1943.

Dr. Goodall presents in this volume an excellent and careful analytical study of the subjects included, from a clinical as well as a pathological point of view. He classifies endometriosis into mixed and stromatous types, and traces the derivation of the various lesions. He explains the different conditions which one meets in pelvic surgery, and the wide pathological variations which we see in endometriosis. The book contains numerous case reports drawn from Dr. Goodall's personal experience in private practice.

This book is readable and extremely interesting to those concerned with pelvic surgery.

The Principles and Practice of Obstetrics: By Joseph B. DeLee, A.M., M.D., Formerly Professor of Obstetrics and Gynecology, Emeritus, University of Chicago; Consultant in Obstetrics, Chicago Lying-in Hospital and Dispensary; Consultant in Obstetrics, Chicago Maternity Center; and J. P. Greenhill, B.S., M.D., Attending Obstetrician and Gynecologist, Michael Reese Hospital; Obstetrician and Gynecologist, Associate Staff Chicago Lying-in Hospital; Attending Gynecologist, Cook County Hospital; Professor of Gynecology, Cook County Graduate School of Medicine. Eighth Edition, Entirely Reset. 1101 pages with 1074 illustrations on 841 figures, 209 of them in colors. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1943.

The first edition of DeLee's textbook appeared in 1913, and the universal acceptance of this book as a leading textbook for medical students and practitioners rapidly followed its publication. Repeated revisions of the book were done by Dr. DeLee, and two years before his death he asked his associate, Dr. J. P. Greenhill, to undertake the revision of the book. Under Dr. DeLee's direction, Dr. Greenhill revised the book, and nearly all of the changes were made with Dr. DeLee's approval. This edition reflects the same conservatism which has characterized the previous editions of the text. Major changes are in a condensation of the material and a reduction in the bulk of the book with no loss in its completeness. All of the recent advances in Obstetrics are included—among them, Water's extraperitoneal cesarean section, continuous caudal anesthesia, and the newer knowledge of the endocrine functions in pregnancy.

This text has lost nothing with the change in authors, and remains a complete reference book on obstetrics and an excellent text for students and practitioners.

Hemolytic Syndromes. By William Dameshek, M.D., and Tibor J. Greenwalt, M.D. Russell J. Tat, M.D., Camille Dreyfus, M.D. Price, $2.25. Boston: H. Jackman Company, 1943.

This publication is a reprint of charts from Dr. Dameshek's laboratory in the New England Medical Center in Boston, Massachusetts. These charts were exhibited at the American Medical Association Meeting in June, 1942, where they created a great deal of interest. The charts illustrate the normal pathways of blood formation and blood destruction, and then go on to demonstrate in outline and graphic form the various hemolytic syndromes which are encountered in clinical practice. The material presented in this publication serves as a very useful aid in studying the causes of hemolytic syndromes, such as hemolytic icterus, sickle cell anemia, and erythroblastosis. Although these charts do not give a complete picture of any of these syndromes, they are of great value as a supplement to one's regular reading. They should be particularly valuable for medical students. Dr. Dameshek brings out again in this publication the indications for splenectomy in hemolytic syndromes and stresses the importance of splenectomy in acute hemolytic anemia. This reviewer found the charts very interesting and would recommend them as a useful addition to medical libraries.

Renal Lithiasis. By Charles C. Higgins, M.D., Cleveland Clinic. 140 pages, illustrated. Price, $3.00. Springfield, Illinois: Charles C. Thomas, 1943.

This little monograph gives the substance of the Beaumont Lectures delivered by Dr. Higgins in 1942. It gives an excellent survey of the experimental procedures used in inducing kidney stones, their probable etiology, symptomatology and surgical and dietary treatment. The importance of vitamin A and diet in the prevention and treatment of lithiasis is described in detail, as are also the analytical procedures which should be used in establishing the composition of renal stones. Diets to be used in attempting to dissolve stones as well as to prevent their recurrence are appended. The importance of such measures is shown in Higgins' clinical results; the incidence of recurrences following operation has been only 4.9 per cent. The general practitioner as well as the urologist will profit by applying the knowledge summarized and ably presented by the author. The only criticism which the reviewer can offer is the brevity of the book. Although it is beautifully printed and designed with the unique craftsmanship for which the publisher has established a well-deserved reputation, a more comprehensive presentation of the subject would have been desirable to justify the publication price.

The book should be read by everyone concerned with the management of patients subject to renal lithiasis.

New and Nonofficial Remedies, 1943, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1943. Cloth. Price, postpaid, $1.50. 772 pages. Chicago: American Medical Association, 1943.

The current volume of **New and Nonofficial Remedies** continues, with minor improvements, the convenient and informative system of classification adopted for the 1942 volume. The terminology of the official drugs has been revised to conform to the U.S.P. XII and the N.F. VII.

Textual changes and revisions do not appear to be as numerous as in some previous editions. The chapter, "Digitalis and Digitalis-Like Principles and Preparations," has been extensively and somewhat radically revised to keep pace with the changing attitude toward this drug. It is understood that in this revision the Council had the aid of the foremost digitalis authorities, pharmacologists and clinicians alike. Other revisions have been made obviously to keep the book up to date with medical knowledge.

No such spectacular new addition as the appearance in a previous volume of the sulfonamides is to be noted. Among the more noteworthy of the new additions are Nikethamide, the central nervous system stimulant which was first introduced as Coramine; Diethylstilbestrol, the synthetic estrogen; Trichinella Extract for the diagnosis of trichinosis; and Zephiran Chloride, a mixture of alkyl dimethyl benzyl ammonium chlorides, an interesting new antiinfective agent.

No one can examine the successive volumes of **New and Nonofficial Remedies** without increasing his profound respect for the faithful and unselfish work of the Council on Pharmacy and Chemistry in the cause of rational therapeutics. Each volume represents a progressive milestone on the road of medical science.

The Mechanics of Obstetrics. By Norris W. Vaux, M.D., Professor of Obstetrics, Jefferson Medical College; and Mario A. Castallo, M.D., Assistant Professor of Obstetrics, Jefferson Medical College. 225 pages with 200 illustrations. Price, $4.00. Philadelphia: F. A. Davis Company, 1943.

Dr. Vaux has incorporated his experience in teaching mannequin obstetrics into this excellent outline of the mechanics of obstetrics. The book is largely in outline form, and gives clearly and concisely the newer obstetrical work on the female pelvis, the methods of pelvic measurements and estimation of pelvic capacity used in the Jefferson Medical School Clinics, and a brief consideration of the obstetrical significance of the fetus. Much space in the book is given to the studies of the mechanism of labor made by Kyle B. Steel and Carl T. Javert at Cornell University. The management of normal labor is carefully outlined in such a way that it is easily understood.

In the consideration of abnormal presentation and the conduct of abnormal labor, the general attitude of conservatism is predominant. Adequate space is given to the Potter technique of internal podalic version and extraction, with illustrations taken directly from Potter's monograph on this subject.

This text is an excellent manual of mannequin practice, and a valuable book for the general practitioner to use in refreshing his obstetrical knowledge.

Doctor in the Making: The Art of Being a Medical Student. By Arthur W. Ham, M.B., Associate Professor of Anatomy in Charge of Histology, University of Toronto; and M. D. Salter, M.A., Ph.D., Lecturer and Research Fellow in the Department of Psychology, Faculty of Medicine, University of Toronto. 179 pages with illustrations. Price, $2.00. Philadelphia: J. B. Lippincott Company, 1943.

A deficiency in study methods due to improper undergraduate and high school training is the cause of tremendous difficulty in adjustment to medical school. This small volume is the outgrowth of counseling by a professor and a psychologist to medical students on their problems. It should be thoughtfully read by every physician who has a son or daughter contemplating the study of medicine and should be required reading for all premedical and first-year medical students. The book could be read with profit by students further along in their course and by the faculties of medical schools. As a rule, secondary school education in the South is quite deficient. If high school and prep school teachers would study the excellently outlined hints for overcoming lack of organization of work, tendency to memorize rather than to understand, and poor budgeting of time, and for applying the scientific method, our students would be far better prepared for college and for subsequent graduate education.

Military Surgical Manuals Volume VI—Neurosurgery and Thoracic Surgery: Prepared and Edited by the Subcommittee on Neurosurgery and Thoracic Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. 310 pages with 103 illustrations. Price, $2.50. Philadelphia and London: W. B. Saunders Company, 1943.

The reviewer is not competent to give a critical analysis of the first portion of the book, which concerns itself with neurosurgery. The portion on thoracic surgery has been compiled by Drs. Evarts A. Graham, Isaac A. Bigger, Edward D. Churchill, and Leo Eloesser. It would be difficult to find four men more capable of discussing the subject of thoracic surgery than these. The subject matter is designed to outline the disposition and treatment of thoracic injuries, which it does in a very excellent fashion. If a separate index had been made for each portion of the book it would have been more convenient for reference work. The text is clear and to the point, and has left out non-essentials. The illustrations are especially clear and well done. Anyone who may be called upon to treat thoracic injuries will find a great deal of value in the book.

Reports of the Council on Pharmacy and Chemistry: Issued under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price, $1.00. 207 pages. Chicago: American Medical Association, 1943.

Through the years the size of this volume has grown with the increased work of the Council on Pharmacy and Chemistry until the present edition has the same number of pages as the book published in 1908, which covered the Council's first four years of activity. Some of the functions of this group are well known, but a more thorough understanding of the Council's scope may be gained from the annual reprint. This volume epitomizes that phase of the Council's work which may be said to be collateral to the "acceptance" of drugs—the informative consideration of current medical problems in the interest of rational therapeutics. It contains reports of studies by private investigators which were originally published in **The Journal** under the sponsorship of the Council, such as preliminary discussions of new developments in therapeutics and timely articles on the status of recognized agents as well as reports of omission or rejection of products from **New and Nonofficial Remedies.** It also offers a record of current decisions on matters of Council policy.

Several of the reports are of particular interest for various branches of medical science: the use of bulk ether in anesthesia, the absorption of surgical gut (catgut), the higher types of antipneumococcus rabbit serum, the surgical and medical treatment of animals with experimental hypertension and the status of racemic epinephrine solutions for oral administration. The reports in this small compact volume represent expert medical consensus and are proffered to aid in the consideration of the value of therapeutic agents.

TRANSACTIONS OF THE AUXILIARY

to the Medical Society of the State of North Carolina

TWENTY-FIRST ANNUAL SESSION

Held at Raleigh, May 11, 1943

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1943.....Mrs. R. A. Moore, Winston-Salem

CONVENTION PROGRAM

Auxiliary General Chairman of Convention
Mrs. Verne S. Caviness

MONDAY, MAY 10

1-6:00 p.m.—Registration.....Sir Walter Hotel

TUESDAY, MAY 11

10:30 a.m.—Executive Board Meeting, Carolina Hotel
1:00 p.m.—Luncheon—Carolina Hotel (Fee $1.25)
2:00 p.m.—Annual State Meeting—Carolina Hotel
Mrs. R. A. Moore. Winston-Salem, President, presiding
7:00 p.m.—Joint banquet with Medical Society
10:00 p.m.—Annual Medical Society Ball

PRECONVENTION MEETING OF THE EXECUTIVE BOARD

Minutes

The Executive Board of the Auxiliary to the Medical Society of the State of North Carolina met in the Lounge Room of the Carolina Hotel in Raleigh on Tuesday, May 11, 1943, at 10:45 a.m. The president, Mrs. Moore, presided. There were nineteen present.

The invocation was given by Mrs. Roy Hege. This was followed by greetings from the president. Mrs. P. P. McCain, as chairman of past presidents, gave greetings and encouragement in her report.

Mrs. Moore asked that she be allowed to reserve her report for the general meeting, in order to save time.

The president-elect, Mrs. K. B. Pace, then gave her report.

Mrs. Sidney Smith, first vice president, asked to reserve her report for the general meeting. Mrs. Charles Gay, second vice president, was not present; her report was filed with the secretary. Letters from Mrs. J. L. Reeves, third vice president, and Mrs. A. H. Elliot, fourth vice president, were read by the secretary. A check for $2.00 was enclosed in Mrs. Elliot's letter. This was turned over to the treasurer.

Mrs. E. C. Judd, treasurer, gave her usual excellent report. All funds seemed to be in healthy condition. She asked that the board consider buying war bonds with $1000.00 of the Endowment Fund. Mrs. John Ray of Leaksville moved that this amount be invested in war bonds. Mrs. Sidney Smith of Raleigh seconded the motion, and it was carried.

It was announced that Mrs. Moore's prize of $5.00 for the largest membership in county auxiliaries went to her home county, Forsyth. The prize reverts to the Endowment Fund.

Reports of the councilors followed.

First District—Mrs. Z. B. Owens — No report, letter read.

Second District—Mrs. O. A. Kafer—No report

Third District— Mrs. C. F. Strosnider — Report read and filed

Fifth District—Mrs. A. L. O'Briant—Report read and filed

Sixth District—Mrs. P. G. Fox—Report read and filed

Seventh District—Mrs. Aubrey Hawes—Report in letter, read by Mrs. Sidney Smith

Eighth District—Mrs. Robert Mathews — Report filed

Ninth District—Mrs. Alfred A. Kent—Report filed

Tenth District—Mrs. John Saunders—Report read and filed.

Mrs. Sidney Smith announced that we have 655 members so far this year, in comparison to 718 when the final report was filed last year. There are eighteen organized counties. Buncombe County was reorganized by Mrs. John Saunders about two weeks ago.

Mrs. Judd announced that Mrs. Stevens of Asheville had graciously donated $25.00 to be used for the Stevens Bed in the Western Sanatorium. Mrs. Sidbury moved that the money be placed in the general fund temporarily, as a nucleus for an endowment fund for the Stevens Bed, subject to Mrs. Stevens' approval. The motion was seconded by Mrs. Judd and was carried. Mrs. McCain moved that the corresponding secretary send greetings to Mrs. Wingate Johnson of Winston-Salem, who had broken her arm, and to Mrs. James Vernon, who was ill.

Since the National Auxiliary has eliminated the office of Exhibit Chairman, it was suggested by Mrs. McCain that the incoming president consider the same action for the state organization.

The chairmen of the standing committees gave reports, as follows:

Program—Mrs. J. A. Elliott—Report filed

Public Relations—Mrs. Wingate Johnson—Report filed

Legislative—Mrs. Rigdon Dees—Report read and filed

Press and Publicity—Mrs. Verne Caviness—Report read and filed

Bulletin—Mrs. Ben Kendall—Report filed

Hygeia—Mrs. W. G. Byerly—Report filed

Historian—Mrs. J. R. Hege—Report read and filed

Exhibit—Mrs. C. B. Davis—No report

Scrapbook—Mrs. Ben F. Royal—Report read and filed

Jane Todd Crawford—Mrs. Harry Winkler—Report filed, with $5.00 check

Defense—Mrs. John Reece—Report read and filed

Doctor's Day—Mrs. R. S. McGeachy—Report read and filed

Mrs. Strosnider moved that the president write a letter of condolence to any member of the Auxiliary who sustains a loss during the coming year. Mrs. Smith seconded the motion and it was carried.

There being no further business, the meeting was adjourned.

Respectfully submitted,
Mrs. P. G. Fox,
Secretary pro tem

Greetings from the President

Mrs. R. A. Moore

I am sure we are all glad to be in Raleigh this morning, for we have looked forward to the Auxiliary Meeting and to renewing friendships with those whom we see from year to year.

A year ago we were just beginning to feel the tinge of war. This year has brought many more evidences of its devastating power.

In spite of the difficulty of travel and the added responsibilities that we all have in the home and in the community, I am glad to see that so many of you have made the effort to be here today.

As you know, in view of present conditions, it was deemed advisable to confine our Auxiliary meeting to one day and to eliminate all social features. As it seems to be the order of the day to "speed up" activities, we shall try to "streamline" our program so as to include all of the necessary transactions. However, let us bear in mind the number of reports and let brevity be the order of the day.

I want to thank you for the privilege of serving as your president this year. You have been lovely to work with, and I am deeply grateful for your fine spirit of cooperation. You have responded cheerfully to every request, and while not all of our aims have been accomplished, I feel that it has been a good year and you have put forth a special effort to make it so.

I want to thank the officers, the chairmen of standing committees, and the councilors, for your faithfulness in every phase of the work. It has been a pleasure to work with you and I shall look back upon this year and its associations with warm affection for each one of you.

Report of President-Elect

At this time last year, realizing the responsibility of this office and being of old fashioned faith, I chose a text, Timothy, 2:15: "Study to show thyself approved."

Serious study has been made of the "By-Laws" of our organization; of the **Bulletin**, which I highly recommend to each doctor's wife; of "The Handbook for Auxiliaries"; of **Hygeia**, and of the national and state medical journals.

All correspondence was answered promptly.

This last month I have been planning with officers the work for another year. I am happy to announce that in the present crucial situation there will be few changes in our official family for this year.

To Nellie Moore, our president, I wish to express grateful appreciation for her patience and help. It has been a pleasure to serve with her. I wish here to pay tribute to her sincerity and ability in promoting the work of our Auxiliary.

To all of you whom I have bombarded with questions, "Thank you."

These next years will test us as we have never been tested before; but with your help, your constructive criticisms and your prayers, I am sure we will promote the same high ideals that have been carried out by your leaders in the past, who have borne high the ever burning flame of Service.

Respectfully submitted,
MRS. K. B. PACE.

GENERAL SESSION

Tuesday, May 11, 1943

Minutes

The twenty-first general session of the Auxiliary to the Medical Society of the State of North Carolina convened at 2 p.m. on Tuesday, May 11, 1943, in the ballroom of the Carolina Hotel, Raleigh. Mrs. R. A. Moore, president, presided.

The invocation was given by Mrs. Roy Hege. The audience then joined in singing "The Star Spangled Banner".

The memorial service, held in memory of members of the organization who had passed away since the last annual meeting, was given by Mrs. Roy Hege, acting for Mrs. Vernon Lassiter, Memorial Chairman.

Mrs. Moore then recognized Mrs. Verne Caviness, Convention Chairman, and Mrs. Charles Flowers, president of the Wake County Auxiliary.

Mrs. Sidney Smith, first vice president, was called upon to take the chair while Mrs. Moore gave the report of her year's work. Her report was accepted. Mrs. Moore again took the chair and called for the report of the first vice president, Mrs. Sidney Smith.

The treasurer's report was then read by Mrs. E. C. Judd.

Mrs. McCain presented the five past presidents who were present. Mrs. Donnell Cobb, wife of the president of the State Medical Society, was recognized by Mrs. Moore.

Mrs. Moore then introduced the chairmen of standing committees, and the presidents of the county auxiliaries who were in attendance.

Mrs. Reece, State Defense Chairman, read her splendid report. She announced that a Field Kit was to be presented to St. Agnes Hospital of Raleigh.

Dr. Cobb, president of the State Medical Society, was introduced and brought greetings from that organization.

Reports by Mrs. Clyde R. Hedrick, councilor to the Southern Medical Auxiliary, and Mrs. R. L. McMillan, delegate to the National Auxiliary, were read.

Mrs. Rigdon Dees reported for the Courtesy Committee.

Mrs. J. B. Sidbury, chairman of the nominating committee, presented the following slate of officers for the year 1943-44:

President—Mrs. K. B. Pace, Greenville
President-Elect—Mrs. John Saunders, Asheville
First Vice President—Mrs. R. A. Moore, Winston-Salem
Second Vice President—Mrs. Charles Gay, Charlotte
Third Vice President—Mrs. J. L. Reeves, Canton
Fourth Vice President—Mrs. A. H. Elliot, Wilmington
Recording Secretary—Mrs. H. L. Johnson, Greensboro
Corresponding Secretary—Mrs. Fred B. Haar, Greenville
Treasurer—Mrs. E. C. Judd, Raleigh

Mrs. McGeachy moved that the slate be accepted, and asked that the secretary cast the ballot. Mrs. P. P. McCain, in most appropriate words, installed the new officers.

Mrs. K. B. Pace, the new president, responded by pledging heart and hand to the work of the Auxiliary for the ensuing year.

A rising vote of thanks was given Mrs. Moore for her splendid year's work. Mrs. Pace took the chair, and the meeting was adjourned.

Respectfully submitted,
MRS. P. G. FOX,
Secretary pro tem.

Memorial Service

Since our last meeting two of our number have been called to their Heavenly Home. As I read their names I am going to ask that we all stand and lift our heads and our hearts toward Heaven.

Mrs. N. H. Street, Craven County Auxiliary
Mrs. William Marvin Scruggs, Mecklenburg County Auxiliary

Please be seated.

A doctor, knowing that his mother was not going to live, came to see a minister. He said, "Please tell me how I can make Mother's going easier." The minister said, "Is your mother a Christian?" The doctor said, "Oh, yes! She has no fear of death. She has talked to me about it many times. She has always done so much for me and it seems that now when I want to help I can do nothing but watch her slip away." The minister said, "I am going to ask you something: Tell me how you feel when you have been away from home a long time and come back." The doctor told him of the warm welcome that always waited for him; of the light left burning in the window, no matter how late the hour; of the happiness which he knew waited for him just inside the door, and which quickened his pulse and made his steps faster. The minister said, "You do not need to be told of the going home of a Christian. Multiply what you have told me many times and you will have the answer."

I tell you they have not died,
Their hands clasp yours and mine,
They are but glorified,
They have become Divine.
They live! they know! they see!
They shout with every breath,
"Life is Eternity!
There is no death."

Report of the President

The twenty-first annual meeting of the Auxiliary to the Medical Society of the State of North Carolina is being held during one of the most critical times in the history of our nation. The work accomplished this year has been done midst the strain of many war emergencies on the home front as well as abroad. Let me take this opportunity now to express my appreciation of the fine and noble way in which the wives of our doctors have carried on, in spite of countless obstacles. Your interest and your cheerful response to every request have been a source of gratification to me, and only through your united cooperation could we have accomplished the work that has been done.

We have looked forward with keen anticipation to our visit to Raleigh, and we are grateful to the Wake County Auxiliary for your hospitable reception. It was my pleasure to visit your Auxiliary in February, and I want to congratulate you upon your excellent achievements this year under the capable leadership of your president, Mrs. Charles Flowers. I also want to thank Mrs. Verne Caviness, the hostess chairman of the convention, and all of the ladies

of the various committees, for your individual part in making this one-day convention a success. As you know, it was deemed advisable in view of the present conditions to confine our state meeting to one day, and to eliminate all social features. I am happy to say that your attendance here today bespeaks the warm affection that we feel for each other. We shall enjoy the fellowship together, and I hope that you will linger after the meeting and renew contacts with friends.

In view of the many activities crowded into this one day, I shall make my report as brief as possible, giving a short resume of the year's work. The detailed reports of all the state officers will appear in the transactions of the Auxiliary in a later issue of the **North Carolina Medical Journal.**

Following is a resume of the year's activities:

1. Auxiliary members have participated in the many branches of work in the war effort. They have taught home nursing, first aid, nurse's aide, and nutrition classes. Graduate nurses have done volunteer supervising and nursing in hospitals and clinics.

In the many branches of Red Cross work, the Auxiliary has supplied supervisors and workers in the making of surgical dressings and in the knitting and sewing rooms.

Other phases of defense work in which Auxiliary members have engaged include staff assistants, motor corps, U. S. O., civilian defense, filter centers and the selling of bonds. Some have worked to relieve the shortage of clerical workers in the offices of the hospitals and in the record room of the blood and plasma banks. The Auxiliary has furnished volunteers in the centers of point rationing, and in the offices of the county demonstration agents.

Surgical instruments have been collected and medical supplies have been donated to the Medical and Surgical Relief Committee of America. $1,000.00 has been realized from the sale of mercy emblems to buy medical and surgical kits for use by our armed forces, and in defense areas in this country. This work has been directed by Mrs. John C. Reece, of Fayetteville, National Defense Chairman.

2. The program of "Health Defense", as suggested by the National Auxiliary, has been the theme of the year. An article by Mrs. Joseph A. Elliott, of Charlotte, program chairman, entitled "Program Suggestions for 1942-1943" in the October issue of the **North Carolina Medical Journal,** served as a valuable source of program material for the county auxiliaries.

Health films and health talks were given in the auxiliaries and in the schools.

3. There were three new auxiliaries organized, making a total of eighteen. Mrs. Sidney Smith of Raleigh, organization chairman, has kept in contact with the ten district councilors, and a letter was sent to the wife of each doctor in North Carolina who is not a member of the Auxiliary, urging her to join, or in case there was no auxiliary in her community, to become a member at large. As a result of this effort we have at the present date a total of 655 members.

4. The Public Relations Committee, under the direction of Mrs. Wingate Johnson, of Winston-Salem, participated in the "Save Your Doctor" campaign, and publicity in the newspapers throughout the state was given to this matter. Many of our doctors have entered the armed forces, thereby placing additional burdens on those left at home. In this campaign it was brought to the consciousness of the public the fact that in North Carolina there are thirty-eight counties that have one doctor to every 3,121 civilians, and that in one county there is one doctor to 5,556 population. There are only five other states in which the doctor-patient ratio is greater than in North Carolina.

5. The Legislative Committee under the administration of Mrs. Rigdon Dees, of Greensboro, was inactive, as no matter of legislation was effected during the year.

6. Articles were contributed each month to the Auxiliary section of the **North Carolina Medical Journal** by officers of the Auxiliary. Publicity in the state newspapers has been released throughout the year. Mrs. Verne Caviness, of Raleigh, is Publicity Chairman.

7. Mrs. Ben Kendall of Shelby, Bulletin Chairman, wrote the local auxiliary chairmen and urged them to stress the value of the **Bulletin** as the official organ of the Auxiliary to the American Medical Association. A total of fifty-five subscriptions were obtained.

8. Mrs. W. G. Byerly, of Lenoir, **Hygeia** Chairman, also wrote to all of the local auxiliaries and urged the placing of **Hygeia** in the doctors' and dentists' offices, and in schools, libraries, and beauty parlors. One hundred and one subscriptions were obtained.

9. Mrs. Vernon Lassiter of Winston-Salem has served as Memorial Chairman, and has been chaplain for the year. She has prepared the memorial service in tribute to our members who have passed on since last we met.

10. Mrs. J. Roy Hege, of Winston-Salem, has written all local auxiliaries and has brought the history of the organization up to date. In the September, 1942, issue of the **North Carolina Medical Journal,** she presented a very complete chronological history of the Auxiliary since its organization in 1923.

11. The Research Chairman, Mrs. John B. Ray, of Leaksville, wishes me to say that she has been privileged to present "A Memoir of Dr. Thomas William Mason Long," written by his friend, Judge R. Hunt Parker, of Roanoke Rapids, to the Southern Medical Lending Library. A copy of this work appeared in the May issue of the **North Carolina Medical Journal,** and copies will also be sent to the Medical Libraries of Duke University, the University of North Carolina and the Bowman Gray School of Medicine. An obituary of Dr. John W. McGehee of Reidsville, by Mr. James H. Armhurst was also sent to the Southern Medical Lending Library.

12. The Scrapbook Chairman, Mrs. Ben F. Royal of Morehead City, has received very little material for the Scrapbook this year. She urges you to send in clippings or stories of any activities of your auxiliary.

13. We will continue to cooperate with the Southern Medical Auxiliary by giving our support to the Jane Todd Crawford Memorial, a fund which is being raised to erect a permanent memorial in Kentucky to the first woman who underwent an ovarian operation. Mrs. Harry Winkler has been chairman for the year.

14. We are glad to say that through the capable leadership of Mrs. R. S. McGeachy of New Bern, our state chairman of Doctor's Day, we have had an almost universal observance of this day, March 30. Doctors were remembered with personal greeting cards and flowers. Editorials and articles on the observance of Doctor's Day were published throughout the state.

15. Mrs. Charles Gay of Charlotte, Chairman of the McCain Bed and Endowment Fund, reports that a doctor is receiving treatment for tuberculosis in the McCain Bed at Sanatorium, and letters, cards and gifts have been sent by county units at Christmas and Easter time. Mrs. Judd, the treasurer, will announce the financial report on this fund later.

16. The Stevens Bed in Black Mountain has been occupied by a nurse who is making a steady recovery. Mrs. J. L. Reeves of Canton is chairman of this Bed Fund. This financial report will also be read later.

17. There have been no requests for student loans this year, as reported by Mrs. A. H. Elliot, of Wilmington, chairman of the Student Loan Fund.

18. Owing to the difficulty of travel your president had to decline regretfully several invitations to visit some of the auxiliaries this year. Those in close proximity of her home were visited, and talks were made in behalf of the Auxiliary, discussing projects and objectives for the furtherance of the work. The auxiliaries visited were Guilford, Forsyth, Wake and Rockingham. A visit to the president of the Randolph Auxiliary in Asheboro was made. Your president has tried to keep in close touch with the auxiliaries through correspondence, and 637 communications have been written. I should like to express appreciation to Mrs. E. C. Judd, of Raleigh, our state treasurer, for her faithful and untiring efforts. To Mrs. R. L. McMillan of Winston-Salem, corresponding secretary, and to Mrs. James Vernon of Morganton, recording secretary, I should also like to express my appreciation for their valuable services. Dr. and Mrs. P. P. McCain, of Sanatorium, and Mrs. J. Buren Sidbury, of Wilmington, have been the fountainhead of knowledge to whom I have referred on many occasions. Mrs. Clyde R. Hedrick of Lenoir, Councilor to the Southern Medical Auxiliary, has kept me in touch with matters of national interest to the Auxiliary.

Our president-elect, Mrs. K. B. Pace of Greenville, has been a great help to me this year, and your past president, and now national vice president, Mrs. Sidney Smith, has been my continual source of inspiration and counsel. Much of the success of the year's work can be attributed to the constructive foundation which was laid during her administration.

I want to thank you for the honor of having served as your state president. This has been a year of sacrifice and service for all, and I am deeply grateful for the fine spirit of the doctors' wives of North Carolina.

We are all facing troublous times, and each of us has an important part to play in this war effort. War has always touched women in a variety of ways. They are called upon to give freely their sons, husbands, brothers. They are asked to arrange their domestic economics to the exigencies of war, and it is their responsibility to maintain the stability of the home. We shall be called upon to make many more sacrifices. We shall do it cheerfully, and may we as doctors' wives, working together in sympathy and affection, strive to give ourselves to the task of winning the war, and the peace to come.

Respectfully submitted,
MRS. R. A. MOORE.

Report of First Vice President and Chairman of Organization

The Auxiliary is now an organization composed of 655 members. Of this number 470 belong to organized county medical auxiliaries and 185 are members-at-large, paying dues in counties which have no auxiliaries. Last year at the annual meeting we reported 718 members, of which 491 belonged to county auxiliaries and 227 were members-at-large. This slight decrease in membership this year is not due to any lack of hard work on the part of state councilors and county presidents, but rather is the result of the absence of many doctors' wives from the state, their homes and lives having been disrupted by the entrance of their husbands into the armed services of the country. One-third of the members of the State Medical Society are now in service.

At the last annual meeting of the State Auxiliary seventeen county auxiliaries were reported organized. Soon after that meeting Wilkes-Alleghany joined the ranks of organized counties, and in the early fall Randolph County was organized by the new Councilor of the Eighth District, Mrs. Robert W. Mathews of Greensboro. This brought us to a total of nineteen organized county auxiliaries when the Board of Directors held its fall meeting in October. We are delighted now to be able to welcome Buncombe County back into the State Auxiliary, this county having been reorganized within the past ten days following splendid work on the part of the Tenth District Councilor, Mrs. John T. Saunders of Asheville. Medically, Buncombe is one of the strongest counties in the state and we are happy and proud to have the wives of its doctors represented in this organization. Mrs. Saunders is also in the process of organizing Haywood County, which means that she has definitely "broken the ice" in the Tenth District, which for a number of years has had no organized participation in the work of the Auxiliary.

Mrs. C. F. Strosnider of Goldsboro, Fourth District Councilor, has likewise made progress with organization work this year and now has Johnson County receptive to organizing. This work will be resumed and, we hope, successfully completed in the fall. While no new counties have been added in the other districts this year, the councilors have done excellent work with many handicaps. It has been impossible for the councilors or any of the state officers to travel about the state this year to make personal contacts in the interest of the Auxiliary, and we should feel gratified that our organization has been held together in such a splendid manner by our president, Mrs. Moore, during these difficult times. When we realize that the bulk of the year's work has necessarily been accomplished by correspondence, we can understand that the odds have been great and the achievements remarkable.

At the final count of organizations we find that Gaston and Person counties are among the missing this year, so that what would have been a total of twenty organized counties in North Carolina has been reduced to eighteen. Gaston is in the Seventh District, whose Councilor has been called away by the entrance of her husband into the Army Medical Corps. The roll-call of districts shows the distribution of organized county auxiliaries to be as follows:

First District, of which Mrs. Z. B. Owens of Elizabeth City is Councilor, has no organized auxiliaries.

Second District, Mrs. O. A. Kafer of New Bern, Councilor, has two county auxiliaries.

Third District, Mrs. D. M. Royal of Salemburg, Councilor, has three county auxiliaries.

Fourth District, Mrs. C. F. Strosnider of Goldsboro, Councilor, has two county auxiliaries.

Fifth District, Mrs. A. L. O'Briant of Raeford, Councilor, has two county auxiliaries.

Sixth District, Mrs. P. G. Fox of Raleigh, Councilor, has one county auxiliary, having lost one —Person County.

Seventh District, Mrs. G. Aubrey Hawes of Charlotte, Councilor, has one county auxiliary, having lost one—Gaston County.

Eighth District, Mrs. Robert W. Mathews of Greensboro, Councilor, has five organized county auxiliaries, the strongest district in the state.

Only one county in this district remains unorganized. Mrs. Mathews has sustained the splendid work begun last year by Mrs. E. T. Harrison of High Point, Councilor, who gave up her work to go with her husband, now in the Army Medical Corps.

Ninth District, Mrs. Alfred A. Kent, Jr., of Granite Falls, Councilor, has one county auxiliary.

Tenth District, Mrs. John T. Saunders of Asheville, Councilor, has one county auxiliary. Mrs. Saunders assumed her work in mid-year, accepting an unexpired term after January. We foresee that the Auxiliary will be greatly benefited by her affiliation with its work in the future.

In spite of many difficulties confronting the Auxiliary during this trying year it can be said that by unusual cooperation of all its officers, committee chairmen, county presidents and individual members, the Auxiliary has held its own in membership and as an organization remains strong.

Routine work of the State Organization Chairman for the year was as follows: Instructions and lists of counties in each district were sent to the ten councilors in September, 1942, in order that they could familiarize themselves with their work before going to the October meeting of the Board of Directors. A personal letter was written to each councilor explaining the organization prospects in each of her counties. Copies of "Instructions to Organizers" were enclosed to be used by councilors as soon as organizers were obtained in their unorganized counties.

Following the Fall Board Meeting personal letters were written to each of the nineteen county auxiliary presidents, asking them to appoint membership chairmen to be responsible for getting in touch with wives of all members of their respective county medical societies.

In November it became apparent that many additional doctors would be called into the armed services by January 1, 1943, and fearing that many potential Auxiliary members would be lost, the Organization Chairman issued an appeal to all county membership chairmen requesting them to intensify their work by enrolling as many members as possible by December 15, 1942. At this time the county chairmen were instructed to ask wives of all members of county medical societies to pay dues to the Auxiliary whether they could be active in the work or not, as it was felt that a large number of contributing members would be needed if the Auxiliary was to maintain its membership during the war years. There was satisfactory action on the part of county membership chairmen in response to this appeal.

In January the Chairman wrote personal letters to all councilors reviewing the organization prospects in their various counties and urging them to increase their efforts to organize their strongest counties and to merge the smaller counties with adjoining large counties. In March final personal letters were written to each of the nineteen county presidents, urging them to enroll the largest possible membership. Six hundred postal cards were multigraphed with an appeal to women in unorganized counties to become members-at-large. These cards were packaged and sent to the councilors to be addressed and mailed by them to wives of doctors in counties having no organized auxiliaries. The councilors promptly mailed these cards in their respective districts.

A file has been set up containing pertinent information concerning each district of the State Auxiliary, showing the number of counties in each district, the number of medical societies, number of auxiliaries, number of members of each, and names and addresses of officers of both medical societies and auxiliaries. To this has been added all correspondence pertaining to organization work for the years 1941-42 and 1942-43. This file is now ready for use by the incoming chairman of organization, to be kept up-to-date and enlarged by her and to be passed on to succeeding organization chairmen.

Respectfully submitted,
MRS. SIDNEY SMITH.

Report of Second Vice President and Chairman of the McCain Bed

In 1928 the Auxiliary took a bed at the North Carolina Sanatorium, which they supported as an annual project until 1934. In this year Mrs. R. S. McGeachy made a motion that we make this bed a permanent project and call it the McCain Bed. Since that time fourteen doctors, members of doctors' families, nurses, children, and other deserving individuals have been our guests in this bed; and we have been allowed the privilege of sharing in their fight to regain their health.

Since September, 1941, Dr. Meredith Johnson, a young lady physician, has been occupying our bed. She is the daughter of Rev. Elbert N. Johnson of Fair Bluff, and is the oldest of four brothers and sisters. She graduated in medicine in 1939 and for the next two years was intern and resident physician at the King's Mountain Memorial Hospital in Bristol, Va. She is a remarkably fine young woman, and her condition has been gradually improving since her admission.

Here is a real challenge to every person in the state interested in medicine—to raise money toward our $10,000 endowment fund in order that our bed may be assured. No project could be more worthwhile than this of seeing that our young patient has a good chance of eventually getting well and of taking up her practice again. When she has recovered, there will be others we can help.

Remember to visit our guest when you are at Sanatorium and to send cards often throughout the year.

Respectfully submitted,
MRS. CHARLES H. GAY.

Report of Third Vice President and Chairman of the Stevens Bed

The patient in our Stevens Bed is Mrs. Myrtle Grady of Bryson City. Mrs. Grady was a nurse in Western North Carolina Sanatorium at the time of her breakdown.

I have written to Mrs. Grady and sent her holiday greetings. I have also heard from her, stating her appreciation and many thanks to each one of us.

Respectfully submitted,
MRS. J. L. REEVES.

Report of Fourth Vice President and Chairman of Student Loan Fund

I hereby report that there were no applications for student loans during the school year 1942-1943.

Respectfully submitted,
MRS. A. H. ELLIOT.

Report of the Treasurer

I hereby submit my report for the year 1942-1943.

It has been a sacred trust to me and I have guarded it diligently. I have carried on the duties of this office as prescribed in the By-Laws.

All disbursements were made only on receipt of itemized bills signed by our president.

I am deeply grateful to our president, Mrs. R. A. Moore, for her advice and cooperation throughout

the year. It has been a real pleasure to serve with her, and to each councilor, committee chairman, county auxiliary president, and every individual who sent in dues and contributions which made this a profitable and worthwhile year of service, I thank you and shall be looking forward to hearing from you next year.

Hereto is appended the Auditor's report, covering in detail the activities of the treasurer's office for the past year.

Respectfully submitted,
MRS. E. C. JUDD.

Mrs. E. C. Judd, Treasurer
The Auxiliary to the Medical Society of the
State of North Carolina
2108 Woodland Avenue
Raleigh, N. C.

Dear Madam:

In accordance with your instructions we have examined the books and records of your Auxiliary for the period from May 20th 1942 to June 30th 1943, and submit herewith the following statements:

Exhibit A—Statement of Assets and Liabilities As of June 30th 1943
Schedule A-1 — Notes Receivable — Student Loan Fund
Exhibit B—Summary of Receipts and Disbursements for the period from May 20th 1942 to June 30th 1943
Schedule B-1—General Expense Fund—Receipts and Disbursements
Schedule B-2—McCain-Stevens Beds Upkeep Fund —Receipts and Disbursements
Schedule B-3—Defense Fund—Receipts and Disbursements
Schedule B-4 — McCain Endowment Fund — Receipts and Disbursements
Schedule B-5—Student Loan Fund—Receipts and Disbursements

We inspected securities and notes receivable on hand, and obtained confirmations from the depository covering balances on deposit. We found your records in excellent condition. It is our opinion that a columnar cash book could be used to advantage in which deposits and checks could be immediately distributed to the proper fund. We believe such procedure would simplify the work at the end of the year. We also believe it would be advantageous for you to close your books on the same date each year, avoiding middle of the month closings and putting your fiscal years on a comparable basis.

CERTIFICATE

Subject to the foregoing qualifications, we certify that, in our opinion, the accompanying Statement of Assets and Liabilities as of June 30th 1943 and the related statements fairly reflect the financial condition at that date and the results from operations for the period from May 20th 1942 to June 30th 1943, upon the basis of accounting records consistently maintained.

Respectfully submitted,
R. L. STEELE & CO.
By: R. L. Steele, C. P. A.

Statement of Assets and Liabilities
As of June 30, 1943
Exhibit A

Assets	*Total*	*General Expense Fund*	*McCain-Stevens Beds Upkeep Fund*	*McCain Endowment Fund*	*Student Loan Fund*
Cash in Bank—Exhibit B	$1,310.41	$ 202.43	$ 215.46	$ 97.66	$ 794.86
Notes Receivable—Schedule A-1	420.00	—	—	—	420.00
Investments:					
U. S. Defense Savings Bonds of 10-1-41—Series F—Mature 12 years from date for $2,800.00—at cost	2,072.00	—	—	2,072.00	—
U. S. War Savings Bonds of 1-1-43 —Series F—Mature 12 years from date for $1,500.00—at cost	1,110.00	—	—	1,110.00	—
TOTAL ASSETS	$4,912.41	$ 202.43	$ 215.46	$3,279.66	$1,214.86
Liabilities	NONE	NONE	NONE	NONE	NONE
Surplus	$4,912.41	$ 202.43	$ 215.46	$3,279.66	$1,214.86

Notes Receivable—Student Loan Fund
June 30, 1943
Schedule A-1

Date	*Maker*	*Maturity*	*Original Amount*	*Amount at June 30, 1943*
10 7 1936	Miss Margaret Knight) W. P. Knight)	1 Year	$ 140.00	$ 80.00
2 10 1937	Miss Margaret Whittington) W. W. Whittington) Pearl G. Whittington)	2 Years	100.00	40.00
8 25 1939	Miss Margaret Whittington) Mrs. Pearl B. Whittington)	—	100.00	100.00
9 10 1940	Charles Highsmith, Jr.) Mrs. Chas. Highsmith)	Within 1 Year from date of graduation	100.00	100.00
9 9 1941	Charles Highsmith, Jr.) Mrs. Charles Highsmith, Sr.)	1943	100.00	100.00
			$ 540.00	$ 420.00

Summary of Receipts and Disbursements
For the Period from May 20, 1942 to June 30, 1943

Exhibit B

	Balance 5-20-42	*Receipts*	*Disbursements*	*Balance 6-30-43*
General Expense Fund—Schedule B-1	$ 188.53	$ 327.50	$ 313.60	$ 202.43
McCain-Stevens Beds Upkeep Fund—Schedule B-2	311.78	494.60	590.92	215.46
Defense Fund—Schedule B-3	—	936.00	936.00	—
Wachovia General Checking Account	$ 500.31	$1,758.10	$1,840.52	$ 417.89
McCain Endowment Fund—Schedule B-4 (Wachovia Savings Account)	592.60	615.52	1,110.46	97.66
Student Loan Fund—Schedule B-5 (Wachovia Savings Account)	598.38	197.05	.57	794.86
Total All Funds—Exhibit A	$1,691.29	$2,570.67	$2,951.55	$1,310.41

General Expense Fund

Receipts and Disbursements
For the Period from May 20, 1942 to June 30, 1943
Schedule B-1

Balance on Deposit—May 20, 1942		$ 188.53
Receipts:		
Dues 1942-43 (655 Members @ $1.00) ½ to McCain-Stevens Beds Upkeep Fund		327.50
		$ 516.03
Disbursements:		
Mrs. David W. Thomas—National Treasurer (655 Members @ .25c)	$ 163.75	
Stationery, Printing, and Postage	100.13	
President's Expenses	30.00	
Councilors' Expenses	3.16	
Defense Expenses	16.00	
Bank Service Charge	.56	313.60
Balance on Deposit—June 30, 1943—Exhibit B		$ 202.43

McCain-Stevens Beds Upkeep Fund

Receipts and Disbursements
Schedule B-2

Balance on Deposit—May 20, 1942		$ 311.78
Receipts:		
Dues—1942-43 (655 Members @ $1.00) ½ to General Expense Fund	$ 327.50	
Contributions	167.10	494.60
		$ 806.38
Disbursements:		
Beds Upkeep		375.46
Balance		$ 430.92
Less: ½ Transferred to McCain Endowment Fund (By-laws—Article VII)		215.46
Balance on Deposit—June 30, 1943—Exhibit B		$ 215.46

Defense Fund

Receipts and Disbursements
For the Period from May 20, 1942 to June 30, 1943
Schedule B-3

Receipts:	
From Sale of Emblems	$ 936.00
Disbursements:	
Medical and Surgical Relief Committee of America	936.00

McCain Endowment Fund

Receipts and Disbursements
Schedule B-4

Balance on Deposit—May 20, 1942		$ 592.60
Receipts:		
Contributions	$ 389.82	
Transferred from McCain-Stevens Beds Upkeep Fund	215.46	
Interest in Bank Balance	10.24	615.52
		$1,208.12
Disbursements:		
U. S. War Bonds, Series F	$1,110.00	
N. C. Intangibles Tax	.46	1,110.46
Balance on Deposit—June 30, 1943—Exhibit B		$ 97.66

Student Loan Fund

Receipts and Disbursements
For the Period from May 20, 1942 to June 30, 1943
Schedule B-5

Balance on Deposit—May 20, 1942		$ 598.38
Receipts:		
Contributions	$ 35.25	
Payments on Loans	150.00	
Interest on Bank Balance	11.80	197.05
		$ 795.43
Disbursements:		
N. C. Intangibles Tax		.57
Balance on Deposit—June 30, 1943—Exhibit B		$ 794.86

Greetings from Chairman of Past Presidents

It is always a great pleasure for me to bring greetings to the members of the Auxiliary. During all these years since the Auxiliary was organized I have had the pleasure not only of holding on to old friends, but of making many new ones, and I covet for all the doctors' wives in the state this happy privilege that has been mine. We, as doctors' wives, have new opportunities for service during these war times. May we all seize each of these privileges as they come to hand.

With best wishes,
MRS. P. P. McCAIN.

Message from Chairman of Advisory Board

Mrs. R. A. Moore, President
The Auxiliary to the Medical Society of the
State of North Carolina

It has been a great pleasure to me to serve as Chairman of the Advisory Committee to your splendid organization and I only wish that my services could have been more worth while. Our State Society appreciates the splendid work you are doing, and I personally want to express my deepest appreciation for your great generosity for providing the free bed fund for tuberculous patients at the North Carolina Sanatorium and the Western North Carolina Sanatorium. Through your help many patients have been restored to health and to useful and active lives.

Most sincerely yours,
PAUL P. McCAIN, M. D.

Report of the Corresponding Secretary

I have attended to the correspondence as directed by the president, Mrs. Moore.

Respectfully submitted,
MRS. R. L. McMILLAN.

Report of Third District Councilor

Number of organized medical societies in the district 5
Number of organized auxiliaries 3
Number of eligible doctors' wives in district 78
Number of members of county auxiliaries in district 52
Number of members-at-large 4
Number of county auxiliary meetings held—
2 business meetings in each of the three counties.

One hundred dollars was sent to the McCain Endowment Fund by the New Hanover-Brunswick-Pender Auxiliary. Doctor's Day was observed by this auxiliary and by the Duplin County Auxiliary.

Fifty-seven Mercy Emblems were sold in the district. Nearly all of the auxiliary members in the Third District are helping in some way in the war effort.

Respectfully submitted,
MRS. D. M. ROYAL.

Report of Fourth District Councilor

1. First I wish to congratulate the doctors' wives of Wilson for the very lovely hospitality extended to the Seaboard Medical Association. On every hand there were charming local people to direct, help and entertain the visitors. There were very elegant parties in many of the beautiful homes of Wilson. The food was superb both in taste and looks. The tables were most unusually decorated. The women entertained beautifully, charmingly and inspiringly.

2. Effort was made to collect the dues in the Fourth District early last fall with fair success. More dues were collected before Christmas than ever before.

3. Organization letters were sent out to all the unorganized counties in the Fourth District last fall. The only reply received was from Dr. Grady at Smithfield a few weeks ago, giving his consent for an auxiliary to be organized at Smithfield. Owing to lack of transportation the organization of this auxiliary has not been completed, but I trust it can go forward in the future.

4. There are six counties in the Fourth District with only two organized auxiliaries, Halifax and Wayne. However, Wilson does the work of an organized county but does not have any officers.

5. The Halifax County Auxiliary has had two regular meetings, collected their dues and sent contributions to the McCain Bed and Student Loan Funds.

6. The Wayne County Auxiliary has held two meetings and has worked with the Community Health Education League for Wayne County, which is a special health program sponsored by the United States Public Health Service in Goldsboro as a war project. I have been chairman of this health league for the past year, and several doctors' wives have worked with me on the planning committee. Each month special medical topics have been studied in large and small groups with nurses or doctors as the principal speakers. Also, movies illustrating the topic of the month have been shown at these meetings. These health speakers and pictures have been used throughout the schools for P. T. A. programs. The schools have cooperated in this health program and many of the sociology classes are taking up some health subject as a main project of the year —such as a study of malaria and its prevention, a study of tuberculosis, colds, influenza, pneumonia, and other medical topics. Each Tuesday night some health topic has been discussed for fifteen minutes on the radio by outstanding speakers either by lecture, interview or group discussion. These programs seem to have a good audience.

The Wayne County Auxiliary also gave a subscription to Hygeia to the William Street School Library. The auxiliary members sent notes of appreciation or gifts to each doctor on Doctor's Day. A tea was given by the Auxiliary at the home of one of the doctors' wives for all the doctors' wives of the county and also for those wives whose husbands are stationed at the Air School at Goldsboro. Dentists' wives were also included. A picnic is planned for the doctors the last of May.

The members of our auxiliary have taught home nursing and nurse's aide classes and have done a great deal of Red Cross work and plane spotting. They have spent many hours at this but did not do it through the auxiliary.

The new officers of the Wayne County Medical Auxiliary are: President, Mrs. I. C. Long, State Hospital, Goldsboro; secretary, Mrs. C. R. Brown, State Hospital, Goldsboro; treasurer, Mrs. W. H. Willis, State Hospital, Goldsboro.

Respectfully submitted,
MRS. C. F. STROSNIDER.

Report of Fifth District Councilor

1. Of the nine counties in the Fifth District, two, Hoke and Robeson, are organized and active in all phases of Auxiliary work. They are handicapped by gasoline rationing, however, and unable to meet as regularly as heretofore. Hoke County was the first auxiliary to pay its dues.

2. Many letters were written to doctors and doctors' wives in the other seven counties, but I was unable to organize any of them. There is a possibility that I may be able to organize an auxiliary in Richmond County during the coming year.

3. No district meeting was held this year, owing to the fact that the Fifth District Medical Society met at Fort Bragg.

4. Cards were mailed to all the doctors' wives in unorganized counties asking that they join the auxiliary and send in their yearly dues.

5. I met with the Hoke County Auxiliary and planned to meet with the Robeson County Auxiliary, but was unable to do so because of the government restrictions on gasoline. Instead I mailed them a message of greeting, and a program of work to be carried out through the year.

Respectfully submitted,
MRS. A. L. O'BRIANT.

Report of Sixth District Councilor

In response to a request by the State Organization Chairman, letters were sent in November to four counties, urging them to organize. Since no answers were received, follow-up letters were mailed in January. I received one answer from Durham-Orange, evincing some interest, but seeming to offer a later date as a more feasible time for trying to carry through the organization, since everyone is so busy with war work at present. This letter with its potentialities will be filed for the use of the incoming councilor. Eighty cards urging "at-large" memberships were mailed.

I have been unable to get any report from Person County, one of the two organized auxiliaries in my district. No dues have been sent in from this county to date.

Wake County Auxiliary is about to end a successful year's work. A yearbook was drawn up again. It continues to be most helpful.

Meetings held	7
Average attendance	27
Paid memberships	63
Scientific programs	3
(1) Nutrition	
(2) Typhus Fever	
(3) Medical Ethics As It Applies to Doctors and Their Families	
Members working in civilian defense	
Red Cross knitting, sewing and serving	51
Red Cross surgical dressings	29
U. S. O. activities	43
Filter Center	14
Friendly Service Group	6
O. C. D. (Block Leaders)	39
Girl Scout Activities	3
Sale of War Stamps and Bonds	27
Visits to Camp Butner Hospital	6
Books and magazines collected for soldiers	14,700
Old instruments collected	103
Mercy Emblems sold	300
Fishing Kits for Navy and Merchant Marines (Donated by Raleigh merchants)	7

Fine publicity was given every auxiliary activity.

Three subscriptions to the **Bulletin** and seven to **Hygeia** were sold. Four were paid for by the auxiliary and presented to the three local hospitals and the Wake County Sanatorium.

A comprehensive sketch of the history of the Wake County Auxiliary was presented by the historian.

Doctor's Day was observed by sending an appropriate card to each doctor in the county, while a red rose boutonniere was delivered by the committee to each Raleigh doctor, white and colored.

One hundred and seventeen dollars were collected by the Ways and Means Committee. The following contributions were made to State Auxiliary projects:

Upkeep Mc-Cain-Stevens Beds	$70.00
Endowment Fund	$17.00

Respectfully submitted,
MRS. P. G. FOX.

Report of Eighth District Councilor

In November I was asked to fill the unexpired term of Mrs. Harrison, who resigned to be with her husband in Service.

The Randolph County Auxiliary was organized in Asheboro in September and is a very active group.

The Guilford County Auxiliary was most unfortunate this year in losing their president, vice president, and treasurer, besides twenty-six members from Greensboro alone, whose husbands were called into Service. We did have four meetings, however, including a picnic in June and a meeting in High Point in December, at which plans to organize a Plasma Bank were discussed. Because of the financial backing that this required, it was thought best to have the Rotary Club sponsor the Bank with our cooperation. In February Mrs. Moore and Mrs. Hege met with us at a dinner-meeting at the Country Club. Both the visitors gave inspiring talks on the work of the Auxiliary and presented ideas that they had found helpful in obtaining new memberships and increasing attendance in Winston-Salem. The March meeting was held in High Point and a report on the progress of the Plasma Bank was given.

We are indeed proud of the work done in the Forsyth County Auxiliary this year. They report:

78 memberships
4 meetings
15 subscriptions to **Hygeia** (7 of these to the schools as a gift)
$35 to McCain Bed Fund
$15 to Student Loan Fund
$535 for 1 kit and Mercy Emblems

I have not received the reports requested from the other counties in the Eighth District. All are organized, with the exception of Surry-Yadkin. I have written fifteen letters, made two long distance calls, and sent one telegram for Auxiliary business.

Respectfully submitted,
MRS. ROBERT W. MATHEWS.

Report of Ninth District Councilor

The regular yearly meeting of the Ninth District Auxiliary was not held in 1942, because the Ninth District Medical Society meeting was cancelled. With this handicap, the only contact I have had with our Ninth District Medical Society has been through one-sided correspondence. I wrote a representative of each of the nine county medical societies, soliciting their help in getting auxiliaries organized. At the same time I wrote a prospective Auxiliary member from each of the nine counties asking her to aid the doctors in getting in touch with every doctor's wife in their county and to cooperate in working up a county auxiliary.

Following that, I mailed out 75 postal cards to last year's members-at-large from my district. In these, there was an urgent appeal for organization in order that the philanthropies of the Auxiliary to the Medical Society of the State of North Carolina might go on during this war period.

Respectfully submitted,
MRS. ALFRED A. KENT, JR.

Report of Tenth District Councilor

I was appointed Councilor for the Tenth District in January, to fill the unexpired term of Mrs. D. I. Campbell King of Hendersonville.

I made a short talk before the Buncombe County Medical Society on April 19, 1943, wrote letters to the presidents of the Haywood and Transylvania County Societies, and wrote a follow-up letter to Mrs. Jonas of Marion, who had previously been appointed organizer for McDowell County.

On April 20 I received a letter from the secretary of the Haywood County Society, announcing the appointment of Mrs. R. H. Stretcher of Waynesville as organizer. No further activity was reported.

On April 30 Mrs. C. N. Burton and I organized the Buncombe County Auxiliary.

Respectfully submitted,
MRS. J. T. SAUNDERS.

Annual Report of the Program Chairman

To forward the work of the Program Committee, "Program Suggestions for 1942-1943", a guide for county auxiliary program chairmen, was compiled and published in the Auxiliary Section of the October **North Carolina Medical Journal.** This was incorporated, also, in a report which was submitted to the State Auxiliary Board of Directors at its regular Fall Meeting, October 8, 1942.

The State Program Chairman has received, and supplied eight or more requests from county auxiliaries for program material.

Nine county auxiliaries reported active program chairmen. The presidents of seven of the remaining organized county auxiliaries served as program chairmen; several were acting for elected program chairmen, who had moved away to be near their husbands in the armed forces.

Sixteen auxiliaries reported thirty-three programs. Wake County had a program meeting every month. Five auxiliaries had only one program meeting each; the other ten county auxiliaries varied from two to five meetings each.

Nutrition proved to be the most used of the suggested subjects.

Doctor's Day was observed by nine auxiliaries, in several different ways. Wake and Mecklenburg had articles on Doctor's Day in their newspapers on March 30. The Wake County Auxiliary sent boutonnieres to their doctors. Mecklenburg County Auxiliary sent letters to members of the Mecklenburg Medical Society in the armed forces and to the Mecklenburg Medical Society, in recognition of Doctor's Day. Guilford also planned to honor its doctors in the Service. The Pitt County Auxiliary placed flowers in doctors' offices on that day.

Wake County had three programs on current medical events. Forsyth and Mecklenburg had one each.

Hoke, Forsyth, Randolph and Mecklenburg each had a program on public relations.

There was one legislative program reported by Wake County Auxiliary. Randolph County held a program on defense, one on wartime medicine, and a dinner meeting with husbands. Wayne County had a tea for medical officers' wives; and the Duplin Auxiliary held a program on "Maternity Care in Duplin County".

Early in March, a report was sent to the National Program Chairman, Mrs. William Hibbitts.

In March, also, a history of Doctor's Day and suggestions for the observance of Doctor's Day were sent to County Program Chairmen or County Presidents.

Respectfully submitted,
MRS. JOSEPH A. ELLIOTT.

Report of Public Relations Chairman

During the year sixty-one letters and cards have been written and one article has been published in the **North Carolina Medical Journal.** Twelve auxiliaries have had public relations chairmen and committees appointed. This is the largest number in the history of the State Auxiliary.

Some of these twelve public relations committees have been very active; others have left much to be desired; and a few have kept their activities a military secret.

In this year of total war all of the interest of this committee has centered around the war effort. The two main objectives have been health education and teaching the public to save the doctors' time in order that they may serve the greatest number of people.

Among the activities and accomplishments of these county committees have been the following:

1. Help in organization and promotion of First Aid, Nurses' Aide, and Nutrition classes, and refresher courses for graduate nurses.
2. Articles written for daily newspapers on Doctor's Day.
3. Donation of a Community Loan Kit, consisting of all sick room needs, to be used free of charge.
4. Active aid in Citizens' Service Corps Block Work.
5. Leadership in Health Education League.

Respectfully submitted,
MRS. WINGATE M. JOHNSON.

Report of Legislative Chairman

I have had only one communication from the National Chairman, and have had no instructions from the State Medical Society. That fact has not deterred nor dampened my zeal for study of legislative issues.

I am cognizant of the necessity for all auxiliary members and other women to be informed on affairs so vital to the health and happiness of our state and nation, so at all times and opportunities I have endeavored to acquaint all groups with which I have contact with the need of being interested, alert and informed.

In my opinion we are moving, though far too slowly, in the right direction. Legislation for the Auxiliary is in its infancy. It is our duty and privilege to exercise the right to vote. Our contribution to humanity may lie in the laws we have enacted.

Although my activities have been limited, I will not consider my year in vain if I have instilled a desire in the hearts and minds of our members for awareness and action in all forms of constructive work.

A grave responsibility rests upon us, and we must meet this challenge. God grant that desire.

Respectfully submitted,
MRS. RIGDON DEES.

Report of the Press and Publicity Chairman

All county press and publicity chairmen were sent a list of their duties early in the fall. Twelve county press and publicity chairmen have responded. Two reports were sent to the national chairman.

There have been two articles sent to eight of our major state papers and an article has appeared in each issue of the **North Carolina Medical Journal.**

Respectfully submitted,
MRS. VERNE S. CAVINESS.

Report of Bulletin Chairman

As Circulation Chairman of North Carolina for the **Bulletin** I have 55 subscriptions to report, some dating from the time of the State Meeting last year.

I regret that we failed to reach our quota again, which is 71, but we still hope to reach that number and exceed it next year. All officers of the Executive Board and Chairmen of Standing Committees of the State Auxiliary subscribed except five persons. It is very noticeable that the more active county auxiliaries have more subscriptions to the **Bulletin.** Perhaps if we could sell more sub-

scriptions we could have many more active local or county auxiliaries.

There were only ten other states that reported a larger number of subscriptions than North Carolina, but we do not want this fact to satisfy us.

Respectfully submitted,
MRS. BEN KENDALL.

Historian's Report

I am proud to announce that, in keeping with our growth, we have become the proud possessors of a beautiful leather-bound notebook in which to record our future activities of historical significance.

From a small beginning in 1923 of 53 charter members we have grown to our present enrollment

HISTORY OF AUXILIARY

Year	Place of Meeting	President	Auxiliaries	Membership	Outstanding Events
1923	Asheville	Mrs. P. P. McCain, Organizing Chairman		53	Constitution and By-Laws Adopted Named "Woman's Auxiliary to the Medical Society of the State of North Carolina"
1924	Raleigh	Mrs. P. P. McCain			Mrs. T. W. Bickett Speaker—"Mothers Aid Work in North Carolina" Dues Set at $1.00 per year
1925	Pinehurst	Mrs. J. W. Faison, Charlotte			Social side of Auxiliary stressed.
1926	Wrightsville Beach	Mrs. J. Howell Way, Asheville			
1927	Durham	Mrs. R. S. McGeachy, Kinston	10 or 12		
1928	Pinehurst	Mrs. B. J. Lawrence, Raleigh	14		Auxiliary to maintain a bed at State Sanatorium
1929	Greensboro	Mrs. A. B. Holmes, Fairmont	23		Constitution revised. Mrs. Allen Bunce, Pres. Southern Auxiliary, spoke on "Student Loan"
1930	Pinehurst	Mrs. J. H. Macon, Warrenton	25		
1931	Durham	Mrs. W. B. Murphy, Snow Hill	23	344	Dr. Fishbein addressed Auxiliary $642 had been raised toward a $10,000 Student Loan Fund.
1932	Winston-Salem	Mrs. R. S. McGeachy, Greenville	32	347	$759.85 in Student Loan Fund Constitution revised
1933	Raleigh	Mrs. W. P. Knight, Greensboro			Mrs. Walter Jackson Freeman, Pres. of Auxiliary to the A.M.A., speaker. Mrs. J. D. Keiger appointed Historian
1934	Pinehurst	Mrs. J. W. Huston, Asheville	16	238	Speakers: Mrs. James Blake, National President Mrs. Southgate Leigh, President Southern Auxiliary
1935	Pinehurst	Mrs. J. Buren Sidbury, Wilmington		235	Bed at Sanatorium named "McCain Bed" for our organizing president, Mrs. P. P. McCain $800.00 in Student Loan Fund Endowment Fund started for bed
1936	Asheville	Mrs. C. P. Eldridge, Raleigh			Name changed to "Auxiliary to the Medical Society of the State of North Carolina"
1937	Winston-Salem	Mrs. J. R. Terry, Lexington			Dr. J. S. Johnson, former patient of bed, refunded $350.00 to fund
1938	Pinehurst	Mrs. W. T. Rainey, Fayetteville			Auxiliary voted a life-time membership to Mrs. P. P. McCain
1939	Bermuda	Mrs. J. A. Elliott, Charlotte			
1940	Pinehurst	Mrs. C. F. Strosnider, Goldsboro	15	605	Supported bill before legislature requiring examination for marriage license Auxiliary voted to maintain a bed at the Western North Carolina Sanatorium
1941	Pinehurst	Mrs. C. R. Hedrick, Lenoir	11	465	Bed at Western Sanatorium named "Martin L. Stevens Bed"
1942	Charlotte	Mrs. Sidney Smith, Raleigh	17	718	$718 realized from sale of Mercy Emblems for Emergency Medical Field Kits
1943	Raleigh	Mrs. R. A. Moore, Winston-Salem	18	655	$1,046 raised for Medical and Surgical Relief Committee; Auxiliary members took active part in war work

of 655. Our Auxiliary continues to grow in size and deeds.

In the September issue of the **North Carolina Medical Journal** the transactions of the Auxiliary were published, and in the Historian's Report you will find a chart of the Auxiliary activities since its organization. It shows graphically for each year the place of meeting, the president, the number of auxiliaries, total membership and outstanding events. This chart is brought up to date each year, making it possible at a glance to see our growth and review our activities.

Respectfully submitted,
MRS. J. ROY HEGE.

Report of Hygeia Chairman

I am giving rather full details of my year's work to try to show that real effort was expended to make the **Hygeia** program a success, although the results are somewhat disappointing.

Last August I wrote a letter to the councilor in each of the ten districts, asking for the names of the officers in the organized auxiliaries in her district, and requesting the name of some doctor's wife in each of the unorganized counties in her district who could act as a key **Hygeia** worker.

I received replies from the councilors in the third, fourth, fifth, seventh, eighth and tenth districts. I wrote a second time to the other three districts, but I received no reply.

A letter was sent to the president of every organized auxiliary, requesting that she send me the name of the **Hygeia** chairman in her auxiliary. Forty-seven letters were sent to doctors' wives in unorganized counties, explaining the **Hygeia** program and requesting each to help carry out the program in her county. A letter was sent to each member of the Executive Board, as you may recall, asking that each member be responsible for securing just one subscription.

Notice of renewal was sent out to the subscriber when I was notified by **Hygeia**. I even enclosed stamped self-addressed envelopes in most cases.

Four counties—Forsyth, Wake, Mecklenburg and Caldwell—made a report, as requested, at the close of the year. Mecklenburg reported 43 subscriptions, 12 given by the county auxiliary to the 3 hospitals. Forsyth reported 15 subscriptions. Wake reported 8 subscriptions, 4 given by the auxiliary to the 4 hospitals. Caldwell reported 17 subscriptions.

The total number of subscriptions received for the year May 1, 1942-April 30, 1943 is 101. We received commissions on 26. The commission amounts to $32.75. While our commissions are less than last year, we have tripled the number of subscriptions secured. My expenses for the year were $5.16, which I donate to the Auxiliary.

I wish to express my sincere thanks to all those who have cooperated in the work of the **Hygeia** program.

Respectfully submitted,
MRS. W. G. BYERLY.

Report of Research Chairman

The major duty of this committee is to study the life and achievement of some of our doctors. This year biographies of Dr. John W. McGehee and Dr. Thomas Williams Mason Long were written.

Dr. McGehee was outstanding in the medical fields of Reidsville and Rockingham County. His biography was written by Rev. J. H. Armhurst, formerly Methodist pastor in Reidsville.

A biography of Dr. Long of Roanoke Rapids, one of our most beloved doctors, was prepared by Judge R. Hunt Parker of Albemarle, and was published in the May issue of the **North Carolina Medical Journal.** Both of these articles will be sent to the Southern Medical Lending Library, and to the libraries of Duke University, the University of North Carolina, and the Bowman Gray School of Medicine of Wake Forest College.

It is my aim to familiarize each member of the Auxiliary with the lives of North Carolina medical heroes, and to pay due homage to these doctors from year to year by recording their outstanding efforts in our annals.

Respectfully submitted,
MRS. JOHN RAY.

Report of Scrapbook Chairman

The number of clippings that have found their place in our Scrapbook this year has been smaller than in some former years. That doctors' wives, as individuals, have been active as leaders in community work all over the state is evident from even a superficial glance at the daily papers, but the increased amount of war work has either crowded out the activities of many auxiliaries, or publicity chairmen have failed to send me accounts of the doings. Nevertheless, the 1942-1943 chapter in our Scrapbook is still replete with the organized efforts to aid our medical men in meeting human needs wherever they are found.

Respectfully submitted,
MRS. BEN ROYAL.

Report of Chairman of Jane Todd Crawford Memorial Fund

A painting by Dean Cornwell, a Kentucky artist, entitled "The Dawn of Abdominal Surgery", was unveiled at a luncheon meeting for the House of Delegates of the American Medical Association, in convention at Atlantic City on June 8, 1942. I had the privilege of seeing this memorial to Jane Todd Crawford and wished that each of you might have had this opportunity.

Several talks and papers about Jane Todd Crawford and Dr. Ephraim McDowell were given during the year at auxiliary meetings.

A gift of five dollars has been made to the Jane Todd Crawford Memorial Fund.

Respectfully submitted,
MRS. HARRY WINKLER.

Report of National Defense Chairman

The Auxiliary had two main projects in the defense program for the year—namely, the aiding of the Medical and Surgical Relief Committee of America and the promotion of interest among the members in all types of war work. The two projects have been successfully carried out, as the following report of the defense committee shows.

On December 7, Pearl Harbor Day, we launched our state-wide drive to sell Mercy Emblems for the Medical and Surgical Relief Committee. Information concerning the background and purpose of the National Committee was mailed to each defense chairman or county president. Nine county societies participated in the sale, and to them credit should be given for successfully reaching our goal of $1,000. The following counties participated:

Forsyth	$415.00
Wake	300.00
Halifax	87.00
New Hanover	29.00
Sampson	28.00
Randolph	25.00
Rockingham	16.00
Hoke	10.00
First District	5.00
	$915.00

Sale at Convention	21.00
	$936.00

This figure represents the total number of emblems sold. A gift of $110.00 from Mrs. Frank Lock, a Forsyth County member, brings our grand total to $1,046.00.

A total of $885.00 has been sent to the Medical and Surgical Relief Committee, and this amount has enabled them to purchase two emergency medical field sets and eight patrol boat kits. One emergency field set was sent to the U. S. Coast Guard for use on one of their larger ships; the other was sent to the U. S. Navy Pre-Flight School at the University of North Carolina, Chapel Hill. The eight patrol kits were sent to the Fifth Naval District of the U. S. Coast Guard. All sets and kits bear a name plate showing that they were donated by the Auxiliary. The name plate on the set sent to the Pre-Flight School has been permanently placed on a wooden plaque that now hangs in the school.

It is our pleasure to present an emergency medical field set to Saint Agnes Hospital in Raleigh during this meeting.

An appeal for instruments and medical supplies was also made, and the following societies have sent in contributions:

Wake—132 pieces of instruments and 8 full fishing kits to be placed on life rafts of the Navy and Merchant Marine.
Mecklenburg—Instruments and supplies.
Halifax—2 packages of supplies.

All of our members have given their time and services to every type of war work in their home communities. A survey was made of the various types of war work in which our members have participated, and the approximate number of hours per week. It was found that the average member gave seven hours and more to war work each week and participated in the following types of work:

First Aid
Home Nursing
Home Service
Nurses' Aides
Canteen
C. D. V. O.
Ration Board
Blood Banks
Citizens Service
Health Education
Girl Scouts
Knitting
Red Cross Sewing
Surgical Dressing
Entertainment of Service Men
Collection of books and magazines for army hospitals (Wake—14,700 books and magazines)
Selling War Bonds and Stamps
U. S. O.
Filter Center
Block Leaders
Motor Corps
Victory Gardens
Doctors' Assistants
Registered Nurses' Refresher Course and Duty

To you members of the Auxiliary belongs the credit for a splendid and most successful defense year. You have cooperated in sponsoring the sale of Mercy Emblems and given willingly hours of your time for war work.

Respectfully submitted,
MRS. J. C. REECE.

Report of Doctor's Day Chairman

The last week in February a letter was sent to the president of each county auxiliary explaining the purpose of Doctor's Day, and stressing the importance of celebrating it in some way. Each president was asked to reply, telling how the day was observed by the auxiliary in her community. Only six replies were received.

As Doctor's Day is still in "its infancy", perhaps next year, as the purpose of it becomes better known, there will be a more general observance.

Respectfully submitted,
MRS. R. S. McGEACHY.

Report of Councilor to Southern Medical Auxiliary

The report of the work being done in North Carolina by the Auxiliary to the Medical Society was made at the annual meeting of the Southern Medical Auxiliary in Richmond, Virginia.

At the meeting Mr. C. P. Loranz, who is Secretary-Manager of the Southern Medical Association and Treasurer of the Jane Todd Crawford Memorial Fund, reported the total of this fund to be $1,492.04. The fund is now invested in United States Defense Bonds.

Two new standing committees were inaugurated this year, one on Doctor's Day and the other on War Time Service.

Mrs. James A. Brawner of Atlanta, Georgia, moved that the Doctors' Aides should become a project of the Southern Medical Auxiliary. I have received from Mrs. Brawner several pamphlets on the Doctors' Aides which I am turning over to Mrs. Pace and her board to consider.

Respectfully submitted,
MRS. CLYDE R. HEDRICK.

Report of Delegate to the National Auxiliary

I had the privilege of representing North Carolina at the Twentieth National Convention of the Auxiliary to the American Medical Association, as alternate for Mrs. Sidney Smith, who was unable to attend. I read her report before the general meeting given over to state reports, and I was indeed proud to give this very excellent report, which received most favorable comment from those present. I felt that North Carolina had made a very good record, as compared even with the older and larger auxiliaries, and that we could justly be proud of our achievements.

I shall not undertake to give you a resume of the program at this late date, because I am sure that you have all read the post-convention number of the **Bulletin**, which gave all reports and addresses in full. I did feel that this was a very outstanding convention, and in spite of the consciousness of war which was manifest everywhere (many doctors were in military uniform, and dim-out regulations were enforced every night), I felt that the meetings struck a new high in sociability, entertainment and education. There were teas, luncheons, and other entertainment provided, along with a very excellent serious program of thought-provoking addresses which we heard at the general meetings and banquets. The general theme of the convention was "Health for Defense". We as doctors' wives were urged to keep ourselves informed on this subject, to keep a watchful eye on falsely promised legislation pertaining to the profession, and to see to it that the public is kept aware of the contribution American medicine is making during this maelstrom of events today, while so many influences stalk the land and spread havoc. We should also look ahead to the post-war period when our special skills will be needed to help in rebuilding a normal world.

There were a number of interesting exhibits on display, among which was the one contributed by North Carolina. There were some unusually fine scrap books contributed by various auxiliaries, and I found these full of ideas for auxiliary programs and activities.

As you know, the American Medical Association voted to postpone their next annual convention until after the war, and our National Auxiliary voted to do likewise, and to be governed in the meantime by the present officers and committees until such time as we can meet in convention again, or until such time as new officers are elected.

I would call your attention to the May, 1943, issue of the **Bulletin**, which carries the proceedings of the Twenty-First Annual Meeting of the National Auxiliary recently held in Chicago. Again we are urged to participate to the fullest in every possible defense effort, both as individuals, and as an organization.

I think Mrs. Haggard, our National president, in her inaugural address, struck the keynote of our aims, when she said that her "One design—a single aim—is that we shall be so united, so strong, so forceful, that no smallest opportunity for service shall pass us by."

Respectfully submitted,
MRS. ROBERT L. McMILLAN.

Greetings to the Auxiliary

Donnell B. Cobb, President
Medical Society of the State of North Carolina

It is indeed a pleasure to bring to you, our sister organization, official greetings and felicitations from the Medical Society of the State of North Carolina. This occasion provides an opportunity for our two organizations jointly to reaffirm our common interest, ambitions, obligations and mutual dependence. In the final analysis, we are all part of the same social and scientific structure and have the same ideals and purposes.

In these strenuous times when many new duties must be assumed by all citizens, there are none that shoulder a more greatly increased responsibility than doctors' wives and their husbands. If our armed forces are taking approximately 33 per cent of the doctors and approximately 8 per cent of the general population, we can readily see that those who remain at home must function in a doctor-patient ratio that is far different from what we have been accustomed to. This inevitably means longer hours and more work for us all. But I have the confidence that you and your husbands will continue to meet and to discharge satisfactorily these increasing duties and responsibilities in the months ahead, with the same patriotic cooperation with which you have met and discharged them in the months that have now passed.

Since the organization of the Auxiliary in 1923, under the presidency of Mrs. P. P. McCain, and with a membership of only 53, you have progressively grown until now you have a membership of 655. That one of your members and your immediate past president, Mrs. Sidney Smith, should have been made a vice president of the Auxiliary to the American Medical Association reflects honor not only upon her, and on your own organization, but on the Medical Society of the State of North Carolina and our whole state as well.

During these years of growth in membership you have assumed many new and noteworthy obligations, and have constantly broadened your interests and activities.

The main interest of all of us in these times is to do everything we can to win the war, and many of you now have husbands serving with the armed forces. The National Defense Program of the Auxiliary has become of paramount interest, and under this your interests have been sharpened and your duties increased in such activities as the Red Cross, home nursing courses, various phases of civil defense, and local health problems.

During these uncertain times let us bear constantly in mind that there is a serious effort being made to alter the practice of medicine as we have always known it. Although in the beginning this effort was made rather insidiously, it has now removed its garments of disguise and openly demands drastic changes. It is the duty of each of us to inform ourselves on governmental and legislative matters so that we may be aware of what is contemplated, so that we may guide and direct any changes in the system of the practice of medicine that seem wise and good. For us to remain complacent and have an indifferent attitude will not be good for us or for the people we serve.

All of you occupy positions of leadership in your communities. By being properly and adequately informed, you can exert great influence in the various other organizations with which you are connected—you may very easily exert the influence that will determine legislative matters. By being able to discuss federalized medicine, its dangers and undesirability, you may help to prevent it from becoming an actuality.

I must take this opportunity to congratulate you upon the noble philanthropies you support: The Student Loan Fund has enabled worthy children to further their education; the McCain bed, with its endowment, at Sanatorium, and the Stevens bed at Black Mountain have done much to restore hope and health to our sick and needy fellow members. In this connection, may I suggest, if someone else has not already done so, the establishment of a memorial bed in our new Eastern North Carolina Sanatorium in Wilson. And if and when this is done, why not honor one of your own members by naming the bed in memory of her?

And finally may I express to you personally the combined sentiment of the Medical Society and say to you what you already know so well: That we value greatly the teamwork between our two organizations. that we appreciate sincerely the excellent work you do and the noble philanthropies you support, and that we, in our work, are so dependent upon your help and your guiding advice that we just could not get along without you.

Inaugural Remarks of Incoming President

Mrs. K. B. Pace

In accepting the presidency of the Auxiliary to the Medical Society, I do so with a humble realization of the confidence you have placed in me. I trust that I may be worthy of that confidence! With a deep sense of responsibility and challenge I assume these duties that my predecessor Mrs. Moore and all the other presidents so ably performed. To emulate her and them when life's tempo is at full speed will not be an easy task. I shall try to meet the challenge because you have asked me to and because now none of us can refuse a call to service.

Our work embraces both the national program and a very splendid state program which we shall endeavor to carry out. Having heard the wonderful report of our president and other officers, you are already familiar with these programs. You have cause for a just pride in this year's accomplishments; you made them possible by your faithful cooperation and concerted action. You have cause for rededication of your energies; it is for you to hold high and to pass from hand to hand the torch of ideals symbolic of this medical auxiliary.

These next few years will test us as we have never been tested. With courage and endurance and cheerful mien our doctors are meeting as always the demands — the limitless demands — made upon them. May the same be said of us, their wives.

This is a day when the wisest of budgeting is needed. Let us budget our time and strength for response to the mass of appeals which come to us each day—placing first the work of the Auxiliary as an instrument of Health Education and National Defense. May we make our program effective in the present world situation.

Let us remember, however, that the greatest asset of the healing art is our physician husband. Always keep his health and happiness our sacred charge, making his home a place of rest, a haven of relaxation and appreciation.

In behalf of the new officers and myself I pledge our loyalty to you. We are eager to serve the great cause to which you have pledged yourselves. We are proud of the opportunity and the challenge. Cemented by bonds of friendship and fellowship our work will grow and we, too, will grow in our service. But only through your help shall we grow; only through the help of every doctor's wife throughout our state. Please promise to go back home and to find and enlist every doctor's wife in the great cause of which each of us is a responsible unit.

The hearts of many of us are burdened today with personal grief and a world-wide sorrow. Yet in our Auxiliary you can find the joy that comes when you

Keep a-smiling and a-loving and a-doing all you can,
For you lose your own troubles when you help your fellow man.

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Mrs. Johnson, George..Wilmington
Mrs. Johnson, H. L.....Greensboro
Mrs. Johnson, J. R.....Elkin
Mrs. Johnson, Paul
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Mrs. Johnson, T. C.....Lumberton
Mrs. Johnson, W. M.
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Mrs. Johnston, J. G.....Charlotte
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Mrs. Jones, C. C.....Apex
Mrs. Jones, R. D. V.....New Bern
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Mrs. Joyner, P. W.....Enfield
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Mrs. Judd, G. B.....Varina
Mrs. Judd, J. M.....Varina
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Mrs. Kafer, Oscar A.....New Bern
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Mrs. Kemp, Malcolm D.
Pinebluff

Mrs. Kendall, Ben H.....Shelby
Mrs. Kennedy, John P...Charlotte
Mrs. Kent, A. A.....Granite Falls
Mrs. Kerr, Joseph.....Wilson
Mrs. Kibler, W. H.....Morganton
Mrs. King, E. S.....Winston-Salem
Mrs. King, Edward.....Asheville
Mrs. Kirby, Leslie..Winston-Salem
Mrs. Kirksey, J. J.....Morganton
Mrs. Kitchin, T. D...Wake Forest
Mrs. Klenner, F. R.....Reidsville
Mrs. Knight, W. P.....Greensboro
Mrs. Knox, J. C.....Raleigh
Mrs. Knox, John.....Lumberton
Mrs. Koonce, Donald B.
Wilmington
Mrs. Kornegay, L. W.
Rocky Mount
Mrs. Kutscher, G. W.....Asheville
Mrs. Lambert, W. L.....Asheboro
Mrs. Lancaster, F. J.....Lexington
Mrs. Lane, John L...Rocky Mount
Mrs. Lanier, V. C.....Welcome
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ANNOUNCEMENTS

The American Foundation for Tropical Medicine, Inc.

For the six month period ending June 30, 1943, twelve grants amounting to $43,680 were made by the American Foundation for Tropical Medicine, Inc., to eleven North American medical schools, a scientific journal and the Army Medical Museum, it was reported by Dr. Jean A. Curran, executive director, at a meeting of the Executive Committee of the Board of Trustees in New York City on July 23.

These grants, made possible by contributions and pledges for the current year of $66,600 by twenty-one American corporations, are being used to strengthen teaching and research programs in tropical medicine and parasitology at the various schools. The approved projects were selected by the medical committee among a number of applications.

Among the medical schools to receive grants during the period from April 1 to June 30 was Duke University School of Medicine.

Companies which have made contributions or formal pledges of support include: Abbott Laboratories; American Cyanamid Company; Ciba Pharmaceutical Products Corp.; Firestone Plantations Company; General Foods Corporation; Hoffman-La Roche, Inc.; The Lambert Company; Lederle Laboratories; Eli Lilly and Company; Merck & Co., Inc.; National Carbon Company; Parke, Davis and Company; E. R. Squibb & Sons; The Texas Company; United Fruit Company; William R. Warner & Company; Winthrop Chemical Company; Winthrop Products, Inc.; and John Wyeth & Brother.

The Foundation acted as the administrative agency for a special grant from the John and Mary R. Markle Foundation, Dr. Curran reported.

Medical and Surgical Relief Committee of America

The 13 Naval Districts of the Coast Guard have each received the second shipment of emergency medical kits for use on patrol-boats from the Medical and Surgical Relief Committee of America, announced Mrs. Huttleston Rogers, executive chairman of the Committee.

"This week completes the second round of shipments, each averaging 10 to 20 medical kits. To date, 362 patrol-boat sets have been distributed to the Coast Guard from an expected total of 1000," reported Mrs. Rogers. In addition, the Committee has donated 191 similar medical kits to Navy subchasers, sending them directly to the commanding officer of the individual ships.

Specially designed by Committee doctors for small sub-hunting craft, the sub-chaser or patrol-boat kit is a compact case containing essential drugs and an instrument roll.

The Medical and Surgical Relief Committee, celebrating its 3rd birthday this month, is conducted by a nation-wide group of physicians and surgeons, organized to send medical aid to the armed and civilian forces of America and her Allies. So far, more than $562,000 of medicines, surgical equipment, vitamins, and other supplies have been donated by the Committee to military and maritime units of the United Nations, to needy hospitals, war-zone welfare agencies and civilian defense posts throughout the free world.

Association of Military Surgeons of the United States

The most important medical meeting ever held in this Nation in time of war will convene in Philadelphia on October 21, when the Association of Military Surgeons of the United States begins its three-day sessions in the Bellevue-Stratford Hotel to mark the 51st meeting of the organization.

The symposium on war medicine will be of vital and direct interest to the health and welfare of the men in the armed forces, to physicians, research specialists and scientists everywhere, as well as to the general public. It is expected that the meeting will bring 2000 doctors, many of whom have been in active combat with the servicemen in every camp and base throughout the country and on all the fighting fronts.

American-Soviet Medical Society Chapter Launched in Detroit

The American-Soviet Medical Society, recently organized to stimulate the exchange of medical information between the United States and the Soviet Union, formally launched its Detroit chapter on Wednesday evening, August 18. Professor Vladimir V. Lebedenko of the Department of Surgery at the First Moscow Institute, who is at present in the United States as official representative of the Russian Red Cross, was the chief speaker. He described his experiences with Soviet war medicine and particularly with new methods of treating shock at the front.

Dr. Warren B. Cooksey, head of the Michigan Blood Bank, presided. The gathering was addressed by Dr. Barris, head of the Detroit chapter of the American Red Cross; Dr. Bruce H. Douglas, commissioner of the Detroit Board of Health; a representative of the Wayne County Medical Society; and the executive secretary of the American-Soviet Medical Society.

Professor Lebedenko was the guest of the Detroit chapter of the American Red Cross before the meeting and made visits to various Detroit hospitals during his stay there.

American-Soviet Medical Society President Honored by Russian Academy of Sciences

Dr. Walter B. Cannon, president of the American-Soviet Medical Society, was formally inducted as a member of the Academy of Sciences of the U.S.S.R. at a reception given in his honor by the Soviet Embassy on Thursday, August 12. Dr. Cannon, who is a professor emeritus of physiology at Harvard, is the first American to be a member of both the Academy of Sciences of the United States and that of the U.S.S.R.

Russian War Relief

Russian War Relief, which is sending American medical textbooks to Russian schools training surgeons and doctors for the front lines, has issued a new appeal for contributions of medical literature.

Inquiries or gifts of medical books should be sent to Russian War Relief, Inc., 11 East 35 Street, New York, 16, N. Y. A complete list of the books needed in the Soviet Union will be sent upon request. Donors may attach to their contributed books notes which will be forwarded to Russian medical libraries receiving the books.

Continuous Caudal Analgesia in Obstetrics

Eli Lilly and Company, Indianapolis, announces the release of a 16-mm. silent motion picture in color on the subject, "Continuous Caudal Analgesia in Obstetrics." The film is available to physicians for showing before medical societies and hospital staffs. It deals with the history, anatomy, and physiology of caudal analgesia and demonstrates the technic of use in obstetrics.

The film was made at the U. S. Marine Hospital, Staten Island, New York, by authorization of the Surgeon General, U. S. Public Health Service, and the demonstrations were carried out by the originators of the technic, Dr. Robert A. Hingson and Dr. Waldo B. Edwards.

Penicillin Bibliography

Announced in the June issue of Medical Journal Abstracts, the very complete 93-page annotated bibliography, Penicillin and Other Antibiotics Produced by Microorganisms, published by E. R. Squibb & Sons, has had widespread distribution, both to physicians in civilian practice as well as to those with our armed forces. It is distributed, as an editorial addendum states, "with the hope that in the interim all in medical practice who are interested in Penicillin may have an opportunity to post themselves on the preliminary investigation which preceded its general accessibility."

The bibliography is divided into three parts. The first portion, containing abstracts of 105 papers, deals with Penicillin, and since the arrangement is chronological the historically-minded reader can follow investigational progress from Fleming's announcement of his discovery in 1929 up to the clinical report of Mayo Clinic's Doctors Herrell, Cook and Thompson in the May 29, 1943 issue of the J.A.M.A.

The second part of the bibliography contains 124 papers dealing with Tyrothricin and Other Antibiotics from Bacteria. The third section includes 20 references to Antibiotics from Various Organisms and to reviews of all these subjects. The utility of the bibliography is measurably enhanced by a very detailed author and subject index. The publishers announce copies are available gratis to physicians; address Professional Service Department, E. R. Squibb & Sons, 745 Fifth Avenue, New York, 22, N. Y.

Announcement of winners in the Schering Award Competition of 1942 has been made by the Committee of Judges. The subject in the second competition of the Schering Award was "Endocrinology in War Medicine" or certain approved alternate subjects. Due to the high quality of the manuscripts, making evaluation a difficult task and assumption of new duties by the Judges in the present emergency, announcement of winners was made later than had been expected. The winners:

1st prize: One full year's scholarship to Elizabeth L. Brown, Class of 1943, New York Medical College, "Endocrines in the Nervous System", (Miss Brown was the 3rd prize winner in the Schering Award Competition of 1941).

2nd prize: One-half year's scholarship to Eugene B. Brody, Class of 1944, Harvard Medical School, "Hormone Factors in Personality".

3rd prize: $100.00 to Roslyn Wiener, Class of 1945, University of Michigan Medical School, "Role of Hormones in Pregnancy and Parturition".

The Schering Award Competition is offered annually by the Schering Corporation for the purpose of stimulating a current interest in endocrinology among undergraduate medical students.

Announcement of a second award for excellence of war production to the General Electric X-Ray Corporation, Chicago, was received by the company today in a letter from Robert P. Patterson, Under Secretary of War. This award adds a white star to the Army-Navy "E" flag which has flown over the company's plant since the coveted industrial prize was first presented as of January 26 of this year.

The letter announcing the second award, reads as follows:

"I am pleased to inform you that you have won for the second time the Army-Navy Production Award for meritorious services on the production front.

"You have continued to maintain the high standard that you set for yourselves and which won you distinction more than six months ago. You may well be proud of your achievement.

"The White Star, which the renewal adds to your Army-Navy Production Award flag, is the symbol of appreciation from our Armed Forces for your continued and determined effort and patriotism."

Signed, Robert P. Patterson

"War or No War—

Depression or no depression, in good times and in bad," Mead Johnson & Company are keeping the faith with the medical profession. Mead Products are not advertised to the public. If you approve this policy, please specify **Mead's.**

A merger of two companies in the field of ethical pharmaceuticals (drugs dispensed largely on physicians' prescriptions) was announced recently by James Hill, Jr., president of Sterling Drug Inc., of which both are affiliates.

Under the merger, Winthrop Chemical Company, Inc. has absorbed Alba Pharmaceutical Company, Inc., and has taken over Alba's assets, property, trademarks and good will.

"Although Alba ceases to exist," Mr. Hill said, "its research and manufacturing facilities in Rensselaer, N. Y. have been consolidated with those of Winthrop. Its marketing policies remain undisturbed. Dr. J. Mark Hiebert, medical director of Alba, becomes assistant to Dr. Theodore G. Klumpp, Winthrop president, devoting himself largely to that company's expanding program of medical research. Other Alba personnel will be absorbed by the surviving company.

Look to your health; and if you have it, praise God and value it next to a good conscience; for health is the second blessing that we mortals are capable of; a blesing that money cannot buy.—Izaak Walton.

Tuberculosis work has consistently stressed the major importance of positive health, of being more physically fit than the immediate demands of your life seem to require. This we may well call the margin of safety in living. Doctor Edward L. Trudeau was not quite wise in advocating too early exercise for his patients but he was basically sound in his faith in the health-giving power of the outdoor life.

In its advocacy of personal hygiene, of physical fitness as a worthy objective per se, the tuberculosis control movement has led the field. It has the position of spike horse on the public health team and has trampled a path for the others to follow.—Kendall Emerson, M.D.

Back The Attack With War Bonds Now

...And Hurry The Headlines of Victory

Headlines of the day tell of the steady forward march of allied forces. And though they bring good news, we must not tarry on their tidings. The headlines of the future—HEADLINES OF VICTORY are those we must strive with all our power to hasten.

This is the month for action on the home front. It's our turn to back up the readiness and efficiency of our men and women at arms with quick and unfailing support. To "back the attack" now, with dollars, is a call that must be heeded. To put all available cash into war bonds is essentially necessary. And for each and every one of us it's the biggest opportunity we have ever had to do our part in helping bring the news of victory nearer and nearer the stage of headline printing.

Buy as many bonds as you possibly can today! They will back the attack and hurry the headlines of victory!

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NORTH CAROLINA MEDICAL JOURNAL

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PRIMARY ATYPICAL PNEUMONIA, ETIOLOGY UNKNOWN

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R. E. STONE, M.D.
and
RUBY A. SMITH, M.D.
CHAPEL HILL

Because of the wide prevalence and unusual clinical and radiological manifestations of atypical pneumonia considerable interest has been aroused in regard to its epidemiology and etiology and its relation to diseases of known etiology with a similar clinical picture.

Since 1935, at the University Infirmary, we have seen 350 cases among students and 50 in private practice. The observations on these 400 cases, occurring over a period of eight years, and the reports in the literature form the basis for this discussion of the clinical picture and the etiology of atypical pneumonia.

This acute infectious disease is a febrile illness of varying severity and duration, usually, but not uniformly, preceded and accompanied by symptoms referable to the respiratory tract. It is atypical in its clinical manifestations, x-ray picture and course, and is characterized by (1) a paucity of abnormal signs on physical examination; (2) very definite roentgenographic evidence of a pneumonic process in the lungs, which often makes for a marked disparity between x-ray findings and physical signs; (3) normal or only slightly increased leukocyte count; (4) absence of an etiological relationship with any known pathogenic bacteria; (5) failure to respond to any of the sulfonamide drugs; (6) relatively long incubation period; (7) infrequency of complications from invasion by secondary organisms; (8) low mortality rate but frequently a prolonged period of convalescence. This latter feature, together with the high and possibly increasing incidence and virulence of the disease, both in the civilian population and in the personnel of the armed forces, makes this one of the most important of the acute infectious diseases involving the respiratory tract at the present time.

On the whole, the essential clinical and roentgenographic features are similar, in spite of considerable variations reported in the severity and course of the disease in different localities and in different years.

Much confusion exists in regard to the designation of this type of infection. It has been reported under a variety of labels, depending upon whether an attempt was made to classify the cases according to clinical features, roentgenological findings, possible etiological factors, or all three.

Thus, cases have been described as "acute pneumonitis"[1], "acute influenza pneumon-

From the School of Medicine and the Health Service, the University of North Carolina, Chapel Hill.

Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

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   (f) Langille, J. A.: Acute Pneumonitis, or Virus Pneumonia, Nova Scotia M. Bull. 21:333-335, 1942.

itis"[2], "acute interstitial pneumonitis"[3], "bronchopneumonia of unknown etiology—variety X"[4], "pneumonitis"[5], "atypical pneumonia with leukopenia"[6], "current bronchopneumonia of unusual character and undetermined etiology"[7], "atypical bronchopneumonia of unknown etiology"[8], "virus pneumonia"[1f,9], "acute infection of the respiratory tract, type A—or type A virus pneumonia"[10], "primary atypical pneumonia"[11], "disseminated focal pneumonia"[12], "benign circumscribed pneumonia"[13], and "primary atypical pneumonia, etiology unknown"[14].

The latter designation has been suggested by the Director of the Commission on Pneumonia, Board for Investigation and Control of Influenza and Other Epidemic Diseases in the United States Army.

Perhaps the two most widely used terms to date are "pneumonitis", from the x-ray appearance of the pulmonary lesions, and "virus pneumonia." The latter term has been perhaps unfortunately rather loosely applied to these cases. While it is true that certain well recognized virus infections may cause pulmonary lesions and a clinical course similar to those observed in this disease, and while certain clinical and laboratory features observed in this group of infections suggest a virus etiology, it would seem wiser for purposes of future clarification and classification to restrict the use of the virus designation until one or more viruses can be definitely established as the causal agent or agents.

It is probable that atypical pneumonia of unknown etiology is not a distinct disease entity but, as Dingle and Finland[14d] and others have pointed out[9e,14c,15], is a clinical and radiological syndrome with multiple etiological agents. Nor do we believe it is a new disease or syndrome, as has been suggested by several observers and as the large number of recent reports might indicate. Certainly the essential clinical, roentgenological and pathological features of this type of infection have been observed prior to the reports of Bowen and Allen in 1935. Indeed, studies of lungs from patients dying in the Civil War show a pathological picture essentially similar to lesions described in fatal cases of atypical pneumonia in recent years[16]. There is clinical and radiological evidence that it was prevalent during the first World War, and, as today, was given various designations[17]. According to Cole[18], similar cases have been seen in New York over a period of thirty years. Dochez[18] has suggested the possibility that this infection might have been prevalent in the past, that its incidence might have diminished, and that it may have reappeared in recent years.

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   (b) Murray, M. E., Jr.: Atypical Bronchopneumonia of Unknown Etiology, Possibly Due to a Filtrable Virus, New England J. Med. 222:565-572 (April 4) 1940.
9. (a) Moss, John: Some Features of "Virus Pneumonia", North Carolina M. J. 3:27-30 (Jan.) 1942.
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   (f) Seeds, A. E. and Mazer, M. L.: Virus Pneumonia; Roentgenographic Characterization of Recent Virus Pneumonitis With Bronchopneumonia, Am. J. Roentgenol. 49:30-38 (Jan.) 1943.
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   (c) Roentgenology, In the Medical Department of the U.S. Army in the World War, Vol. 9, Communicable and Other Diseases, Washington, Government Printing Office, 1928, pp. 152-154.
18. Dochez, A. R. and Cole, Rufus, in discussion on Reimann and Stokes (25a).

Epidemiology

Atypical pneumonia of undetermined origin is apparently a widely prevalent infection, occurring in both sporadic and epidemic forms. It has been noted in almost all sections of the United States and Canada, in Hawaii[2], in England[5a,b,12,13] and in India[3b], and when reports are available, it will probably be shown to have occurred in military hospitals wherever our troops are now quartered. Because of the suggestive evidence that the infection frequently occurs in mild form without pulmonary involvement and because of the variable clinical criteria for differentiating this disease from influenza and other acute infections of the respiratory tract, it is impossible to estimate accurately the rate of attack among the population at large. One has the definite impression that, even allowing for the increased awareness of the profession in the diagnosis of atypical pneumonia, its incidence has actually increased in the last two years.

Age

While, judging from the large number of reports from colleges[1b,c,d,3a,8b,19] and military hospitals[1a,e,2,11a,14a,20,21], the incidence of the disease appears to be highest in young adults, it apparently attacks all age groups. It occurs in infants and children[22]. We have seen the disease in patients from the ages of 12 to 80. The increased opportunity for spread of the infection in schools and colleges, hospitals, and military posts undoubtedly plays an important part in the large number of cases occurring in those institutions, while the easy accessibility of the x-ray and fluoroscope and their more routine use have undoubtedly aided in its more widespread recognition in these places.

Season

The disease is not limited to any one season of the year, although in the majority of the reports cases have been more prevalent in the late fall and winter months[1c,3a,7,8,10,19c,23]. On the other hand, small outbreaks as well as sporadic cases have been reported in the spring and summer months[4,9b,20,21a,b,24]. We have seen cases in every month of the year, and in each of the past twenty-four months we have had at least one case in the University Infirmary. We have noted over an eight-year period that from year to year the monthly incidence varies, but in general it is highest in the period from October through March.

There has been no constant relationship between the occurrence of atypical pneumonia and that of influenza, or other acute infections of the respiratory tract. Twice during the period from 1935 to 1943 there have been outbreaks of influenza—in the winter of 1936 and again in 1941. In neither year did we observe an increase in the number of cases of atypical pneumonia before, during, or following the outbreak of influenza. This finding suggests, as do the etiological studies of others[8,20,25], that the virus of influenza, types A and B, is not the causative agent of atypical pneumonia.

The relation of this infection to other acute diseases of the respiratory tract is not so clear. In the outbreak of atypical pneumonia at Camp Claiborne, Louisiana, in the summer of 1942, Dingle and his co-workers[20] reported a rough parallelism between the incidence of atypical pneumonia and that of other acute diseases of the respiratory tract. Similarly, other observers have noted

19. (a) McKinlay, C. A. and Cowan, D. W.: Acute Respiratory Infections Including Lobar Pneumonia and Atypical Pneumonia in a Young Adult Group, Journal-Lancet 61:125-133 (April) 1941.
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(c) Daniels, W. B.: Bronchopneumonia of Unknown Etiology in a Girls' School, Am. J. M. Sc. 203:263-276 (Feb.) 1942.

20. Dingle, J. H. and others: Primary Atypical Pneumonia, Etiology Unknown, War Med. 3:223-248 (March) 1943.

21. (a) Duggan, LeRoy B. and Powers, W. L.: Acute Respiratory Infection Resembling So-Called Acute Pneumonitis, J. Lab. & Clin. Med. 28:524-530 (Jan.) 1943.
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(c) Kamin, H. N.: Virus Pneumonia, Illinois M. J. 83:41-43 (Jan.) 1943.

22. (a) Adams, J. M., Green, R. G., Evans, C. A. and Beach, N.: Primary Virus Pneumonitis: A Comparative Study of Two Epidemics, J. Pediat. 20:405-420 (April) 1942.
(b) Adams, J. M.: Primary Virus Pneumonitis With Cytoplasmic Inclusion Bodies: Study of an Epidemic Involving Thirty-Two Infants, With Nine Deaths, J.A.M.A. 116:925-933 (March 8) 1941.
(c) London, A. H.: Personal Communication.
(d) Personal Observations.
(e) Gedgoud, J. L.: The Diagnosis of Virus Pneumonitis in Infancy, Nebraska M. J. 28:51-53 (Feb.) 1943.

23. Reimann, H. A. and Havens, W. P.: An Epidemic Disease of the Respiratory Tract, Arch. Int. Med. 65:138-150 (Jan.) 1940.

24. Iverson, H. A.: An Epidemic of Acute Respiratory Disease Associated With Atypical Pneumonia, Bull. Johns Hopkins Hosp. 72:89-100 (Feb.) 1943.

25. (a) Reimann, H. A. and Stokes, J., Jr.: An Epidemic Infection of the Respiratory Tract in 1938-1939; A Newly Recognized Entity, Tr. A. Am. Physicians 54:123-129, 1939.
(b) Stokes, J., Jr., Kenney, A. S. and Shaw, D. R.: A New Filtrable Agent Associated With Respiratory Infections, Tr. & Stud., Coll. Physicians, Philadelphia 6: 329-333 (Feb.) 1939.
(c) Francis, T., Jr. and Magill, T. P.: An Unidentified Virus Producing Acute Meningitis and Pneumonitis in Experimental Animals, J. Exper. Med. 68:147-160 (Aug.) 1938.

a possible relationship[1b,c,10,25a]. As has been noted above, the majority of reports would indicate a higher incidence of the disease in the fall and winter months, when the acute respiratory infections are most prevalent, and this has been true in our experience. On the other hand, we have not observed a constantly recurring correlation between the number of other respiratory diseases and the incidence of atypical pneumonia. Thus, from September, 1942, to May, 1943, there have been 125 cases of this type of pneumonia; yet the incidence of respiratory infections has been less than in the same period of 1941-1942, when there occurred only 21 cases of atypical pneumonia.

It may well be that many of the cases of so-called acute respiratory infections with symptoms indistinguishable from those of this disease are milder forms of this infection without pulmonary lesions. The final answer to the relation of this acute infectious disease to other infections of the respiratory tract must await further etiological and epidemiological studies.

Communicability

That the disease is communicable is now fairly definitely established, although evidence regarding the mode of spread is lacking. Opinions differ in regard to the degree of communicability of the infectious agent, but in general it is apparently not highly contagious.

There have been reports of several cases occurring in one family[1c,3a,10,19c], and in other instances cases have been traced to a single known contact[4,7,18,20,22c,23]. Some observers have noted a high rate of attack among doctors, nurses, and other hospital personnel in intimate or prolonged contact with the disease, but this has not been common in our experience.

The disease is presumably spread through direct contact from person to person. The mild unidentified cases may be of considerable importance in the spread of the infection.

The Incubation Period:

The available evidence in regard to the period of incubation indicates that it is variable, but in general ranges from one to three weeks or longer. In at least one outbreak it appeared to be shorter[23]. In our own experience, where it has been possible to trace contacts accurately the incubation period has varied from ten to eighteen days.

The Clinical Picture

The Onset:

The onset is most frequently insidious, but occasionally it may be abrupt. For one to six days or longer the patients may have symptoms of a mild respiratory infection, with nasal discharge, headache, mild general malaise, non-productive cough and occasionally sore throat, loss of appetite and vague gastro-intestinal symptoms, although these latter three complaints are not usually prominent. Like the clinical course, the onset may vary both among sporadic cases and in different outbreaks. In some epidemics respiratory symptoms preceding or accompanying the disease have been rare or non-existent.

Symptoms:

General malaise, fever, headache, often frontal and peri-orbital, cough and chilliness are prominent features. The headache and general malaise vary in intensity, frequently persist throughout the febrile period, and show exacerbation with each spread of the pulmonary lesions.

The temperature ranges from 99 F. to 105 F. In the milder cases it is likely to be between 100 and 103 F., while in the more severe cases, higher levels are the rule. The duration of the fever is variable and, while it may persist for six to eight weeks or longer, the average duration is five to ten days, ending by lysis. The temperature may be sustained throughout the febrile period, but more commonly it is of the septic or swinging type and is often biphasic[4,14d]. In the more severe cases one sees several temperature elevations of 104 to 105 F. in a twenty-four hour period, each preceded by chilliness and followed by drenching sweats. In a few of our cases extensive pulmonary lesions have been demonstrated by x-ray in patients whose temperature was never above 100 F.

In many cases cough is a prominent symptom; it is frequently severe and occurs in distressing paroxysms difficult to control. In the first two to four days it is largely non-productive, but later mucoid and muco-purulent sputum may be raised. While occasionally blood streaked, the sputum almost never has the "prune juice" appearance and other characteristics of typical lobar pneumonia.

In some cases there is little or no cough throughout the course of the disease, and it may be impossible to secure a specimen of sputum. This has been true in about 10 per cent of our cases.

Chilliness is frequent, but true shaking rigors are rarely seen. Substernal soreness and tightness in the chest are frequent complaints, but the pain of acute fibrinous pleurisy is uncommon. Profuse sweating early in the disease, at times persisting into convalescence, is often seen and may be quite distressing.

In the mild and moderately severe cases the pulse rate is often slow in relation to the elevation of the temperature. In the more severely ill patients the pulse is more often accelerated. The respiratory rate is, for the most part, normal, or only moderately elevated. Dyspnea and asthmatic breathing are rarely seen[7].

Prostration may be marked and out of all proportion to the physical findings or to the amount of lung involvement, as demonstrated by x-ray. For the most part, however, the majority of patients do not appear clinically to be as sick as one would expect from the height of the temperature and the extensiveness of the pulmonary lesions.

In the more severely ill patients, cyanosis and abdominal distention are not uncommon. Severe, persistent headache, meningismus, slight jaundice, mental confusion and coma have all been encountered, but are relatively rare.

Physical Signs:

One of the characteristics of the disease is the scarcity of abnormal physical findings, particularly on examination of the lungs, throughout the entire course of the disease.

At the onset, aside from a mildly congested nasal mucous membrane and a slightly injected pharynx, one may find no abnormal signs. However, in most cases, within the first two to four days after the onset of the more severe symptoms one can hear a few crepitant or crackling rales—chiefly inspiratory—over the pneumonic area, often accompanied by slight impairment of the percussion note and slight to moderate suppression of the intensity of voice and breath sounds. Except for an increase in the number of rales and a change in their character to a louder, more moist, or "sticky" type, and the appearance of coarse rhonchi throughout the area involved, the lungs may show no further progression toward the typical signs of pulmonary consolidation. Such signs are rarely encountered.

We have seen cases in which examination of the lungs showed no abnormal signs— in spite of an extensive pneumonic process demonstrated by x-ray—until defervescence occurred, when showers of coarse, moist rales alone or accompanied by changes in the character of breath sounds and percussion note appeared. In a few cases the pulmonary signs may be fleeting and may disappear after a few days, or they may persist for weeks or months, even after the disappearance of x-ray evidence of the pneumonia.

In cases that run a longer course with recrudescences and x-ray evidence of spread or extension of the pneumonia into one or more lobes the above signs may be found over scattered areas, or over the entire chest.

In general, the physical signs over the lungs are more those of a slight infiltrative process or of an atelectasis, or both, than those of consolidation, and the appearance of rales some time in the course of the disease is probably the most characteristic abnormal sign. In some cases a palpable spleen[7] has been noted, but this has occurred rarely in our experience and in that of the majority of observers.

It is important to emphasize that the height of the temperature, the physical signs in the lungs and the extensiveness of the pneumonia, as demonstrated by the x-ray picture, are not reliable criteria for assessing the seriousness of the patient's illness. One's clinical impression of the appearance of the patient is more reliable. Thus, in some cases there may be a high temperature and marked prostration, with as definite signs in the lungs as one usually finds in this disease, and yet the x-ray may show only slight to moderate involvement. In other cases there may be extensive lung involvement demonstrable by x-ray, with minimal or no abnormal physical signs over the lungs, and the patient may appear clinically quite ill. On the other hand, one is impressed by the number of patients with high temperature, with or without definite abnormal signs in the lungs, but with extensive x-ray findings, who do not appear particularly uncomfortable or very sick. This lack of correlation between the clinical appearance of the patients and the temperature and x-ray

findings is one of the most characteristic and constant features of the disease.

The Course of the Disease:

For the most part the disease is mild, but it may run a severe, at times alarming, and rarely a fatal course. In the milder and moderately severe cases the physical signs usually disappear completely in one to three weeks. In the more severe cases the course differs only in degree and duration from that in the milder ones. Subjective symptoms and prostration are more marked, and the more serious symptoms and signs mentioned above are occasionally encountered. The temperature is higher, persists for a longer time, and is more likely to be of the swinging or septic type. Relapses and recrudescences are not infrequent and occasionally the pneumonic process involves successively all five lobes over a period of from three to six weeks, or longer. In these severe cases convalescence may be prolonged for one to three months or more, with symptoms similar to those following severe influenza.

Laboratory Findings

Generally the leukocyte count is normal or only slightly increased in the early stages of the disease, but this finding varies in different outbreaks and in sporadic cases. Either leukopenia or leukocytosis may occur at the onset. Counts as high as 65,000 have been reported[7,18]. There has been no significant variation from normal in the distribution of the leukocytes except for the increase in polymorphonuclear cells in those patients with a leukocytosis.

Frequently when resolution of the pneumonic process begins the leukocyte count becomes moderately elevated, and may remain so for several weeks. In cases with a prolonged course a secondary anemia occasionally develops. The sedimentation rates are increased. Urinary findings are those that commonly occur in febrile diseases. False positive Wassermann reactions have been reported during the acute stage of the infection[7,26].

Roentgen Ray Examination

The x-ray findings, while not pathognomonic of this disease, are, in conjunction with the clinical picture, of the greatest importance in establishing the diagnosis and are fairly typical in spite of their variability. Not infrequently the first evidence of a pneumonic process is discovered by x-ray examination, which generally shows more extensive involvement than would be expected from physical signs. If more frequent use were made of this diagnostic procedure in obscure respiratory infections, undoubtedly the incidence of atypical pneumonia would be found to be much higher than even the increasing number of reports would indicate.

There have been many excellent descriptions of the radiological picture in these cases given by Bowen[2], Kneeland[7], Longcope[4], Green and Eldridge[14a], Goodrich and Bradford[9e], Dingle and Finland[14d], Seeds and Mazer[9f], Kornblum and Reimann[27] and others.

Briefly, in the majority of cases the pulmonary lesions can be shown by x-ray to begin as an increase in the hilar shadow and as an accentuation and fuzziness of the bronchial markings, especially in one or both lower lobes. This area often develops into a soft mottled or homogeneous density in the shape of a fan or wedge or rounded shadow extending toward the periphery of the lung —more commonly toward the diaphragm or mid-portion of the lower lobe, less frequently toward the apex. The lower lobes have been much more frequently involved than the upper in all reports.

The shadow gradually fades out into normal lung tissues. Generally it involves only a portion of a lobe, but as the disease progresses actual mottled shadows indicating parenchymal spread may develop and coalesce. Seldom does this infiltrative type of lesion produce as dense a shadow as is seen in lobar pneumonia[2] and, as has been pointed out by Green and Eldridge[14a], it rarely completely obscures the normal vascular and bony shadows in the chest. Seeds and Mazer[9f] describe this as a "striated infiltrative background rather than a pure homogenicity."

Not infrequently the lesions may become bilateral and may spread from lobe to lobe, demonstrated roentgenographically as areas of moderate patchy density. Often small areas of involvement occur in one or the other cardiophrenic angle. In other cases the lesions may appear as small areas of the

26. Stahle, D. C.: Clinical Report on Primary Atypical Pneumonia. Report at Regional Meeting Am. Coll. Physicians, Walter Reed Hospital, April 24, 1943.

27. Kornblum, K. and Reimann, H. A.: The Roentgenological Aspects of an Epidemic of Acute Respiratory Tract Infection, Am. J. Roentgenol. 44:833-844 (Sept.) 1940.

soft "cotton wool" type of acute exudative infiltration that occurs in tuberculosis.

The duration of the x-ray findings is variable: often the shadows are fleeting, disappearing in a few days, while in other cases x-ray evidence of infiltration may persist for as long as three months[9e]. In the majority of cases the x-ray findings disappear completely in one to three weeks. Occasionally the increased hilar and bronchial markings are visible for a month or longer.

Pathology

The few cases of atypical pneumonia that have come to autopsy show a fairly uniform pathological picture in the lungs, which histologically is characterized by a hemorrhagic interstitial type of pneumonia of patchy distribution with involvement of the bronchi and bronchioles. The exudate in the involved areas is chiefly of the mononuclear cells. The histological findings are probably not any more pathognomonic for this disease than is the x-ray picture. Similar pathological lesions have been observed in influenzal pneumonia, psittacosis, ornithosis[14d,15,16], "Q" fever[16], and in the pneumonia following measles[16]. This is suggestive evidence of a virus etiology, but, as has been pointed out by Golden[16], it does not necessarily follow that similar pathological lesions result from similar pathogenic agents.

Complications

As a general rule complications are rare. Otitis media, purulent but more often catarrhal, has been noted and has been particularly common in our experience. Acute fibrinous pleuritis, empyema, tonsillitis, acute sinusitis, polyarthritis, pneumococcal pneumonia, liver damage, thrombophlebitis, involvement of the central nervous system, and encephalitis have been observed but are certainly rare.

Differential Diagnosis

If one is aware of the prevalence of atypical pneumonia the diagnosis can be made on the basis of the clinical picture. The usual laboratory procedures, especially the x-ray examination, provide important confirmatory evidence for the clinical diagnosis. Unfortunately, as so often happens among less discriminating physicians, the diagnosis will undoubtedly become quite popular as a label for many unexplained fevers and atypical manifestations of other diseases. If we are to make progress in the eventual solution of this confused problem we must make the diagnosis only on sufficient clinical and laboratory evidence, including x-ray or fluoroscopic findings in the lungs.

Within the first few days the disease may suggest typhoid fever, undulant fever, tularemia, and any blood stream infection. With the development of pulmonary lesions the disease may at times be confused with influenzal pneumonia, pneumococcus pneumonia, atelectasis, malignancy of the lung, fungus infections, and especially pulmonary tuberculosis if lesions are in the upper lobe. In these cases serial roentgenograms of the chest over a week or ten days, the absence of positive sputum, and the clinical improvement should prevent the institution of pneumothorax, such as has been reported[9e]. Wherever laboratory facilities are available, attempts should be made to exclude the known virus agents that may produce a similar picture.

Immunity

Reliable data are not available in regard to the immunity from this infection. During the period since 1935 we have seen only 9 patients who had more than one attack. In 7 of the cases the second attack occurred within two to four months after the first, and because of the known variability in the duration of the disease, the frequency of recurrences and relapses, and the lack of knowledge in regard to the causal agent or agents involved, it is impossible to say whether this represents a second attack of the disease or a recrudescence of the original infection. In 2 patients second attacks occurred two years following the initial illness.

Etiology

The etiology of atypical bronchopneumonia is still undetermined. Since a clinical radiological syndrome very similar to this may be produced by a number of known agents[14d, 15,28], the confusion in regard to the diagnosis and proper classification of this entire group of infections cannot be clarified until the various etiological factors involved can be identified; only then will it be possible to

28. (a) Favour, C. B.: Ornithosis (Psittacosis): A Report of Three Cases and a Historical, Clinical and Laboratory Comparison With Human Atypical (Virus) Pneumonia, Am. J. M. Sc. 205:162-187 (Feb.) 1943.
(b) Hornibrook, J. W. and Nelson, K. R.: An Institutional Outbreak of Pneumonitis: Epidemiological and Clinical Studies, Pub. Health Rep. 55:1936-1944 (Oct. 25) 1940.

separate from this large and, for the most part, unclassified group those cases that result from infection by a specific agent.

The usual bacteriological diagnostic studies have been as disappointing as has the physical examination of the lungs. Repeated blood cultures have been uniformly sterile. Agglutinations for the bacilli of the typhoid group of organisms, tularemia, brucellosis, and Proteus X19 have been negative.

Bacteriological studies of the nose and throat and of the sputum show essentially the normal flora for the respiratory tract. The incidence of pneumococci found apparently varies with the year and the locality. The pneumococci which have been isolated have been often of the "higher" types and are not thought to have any etiological relationship to the infection. Evidence of tuberculosis and fungus infections has not been found in the sputum. In a number of the cases that we have observed in the last twelve months the sputum, even though mucopurulent in appearance, has shown a scarcity of organisms throughout the entire course of the disease.

Because of the clinical, radiological, and pathological resemblance of atypical pneumonia of unknown etiology to similar manifestations produced by the viruses of influenza[15], psittacosis and ornithosis[15,28a,29], most observers, since the disease was first recognized, have felt that it was caused by a virus. Repeated attempts[22a,d,30] have been made to isolate a virus or rickettsial agent from patients with this disease. Thus far in most of the epidemics and groups of sporadic cases in which such studies have been reported, it has not been possible to relate any of these agents to atypical pneumonia, in spite of the inoculation into a variety of laboratory animals, including mice, ferrets, guinea pigs, rabbits, and various types of monkeys, and into the chorio-allantoic membrane of hen's eggs, of naso-pharyngeal washings, sputum and blood from patients with this disease.

In spite of these negative results, there are data which suggest that one or more viruses may be responsible for atypical pneumonia. Thus, filtrable agents which produced pneumonia in a variety of animals, including mice, mongooses, and cotton rats, have been isolated from specimens of sputum, naso-pharyngeal washings, or blood from patients with this disease by Stokes et al.[25b], Francis and Magill[25c,31], Weir and Horsfall[32], Eaton and his co-workers[33], Johnson[20], and Horsfall and others[34]. Baker[35], and Blake, Howard, and Tatlock[36] report the isolation of a virus—"the cat pneumonitis virus"—from cats ill with a severe respiratory infection and pneumonia, and were able to reproduce a similar infection in other cats. There is suggestive evidence in their reports both that a similar infection with atypical pneumonia in human patients may have resulted from contact with the cat virus, and, on the other hand, that cats may have acquired the infection from human beings.

The possible relation of atypical pneumonia of unknown etiology to psittacosis or ornithosis (a term suggested by Meyer[37] to include psittacosis-like infections in non-psittacine birds and in human beings) has been the subject of considerable interest and investigation. Thus, Eaton, Beck and Pearson[38], Meyer and his co-workers[37,39], and Stickney and Heilman[29] have reported the isolation of psittacosis-like viruses from patients with atypical pneumonia occurring both in small outbreaks and sporadically, who had been in contact with pigeons, chickens, and other barnyard fowls. This psittacosis group of viruses has been shown to be related to the meningo-pneumonitis virus of Francis and Magill and to the virus of lymphogranuloma venereum[38].

Favour[28a] and Smadel[40] have reported a

29. Stickney, J. M. and Heilman, F. R.: The Isolation of a Virus in Atypical Pneumonia, Proc. Staff Meet., Mayo Clin. 17:369-375 (June 17) 1942.
30. (a) Enders, J. F., Sullivan, E. R., Hammon, W. D. and Meakins, J. L., cited by Murray (8).
(b) Brown, T. M., cited by Longcope (4).
(c) Dyer, R. E. and Topping, N. H., cited by Daniels (19c).
31. Francis, T., Jr. and Magill, T. P., cited by Reimann (10).
32. Weir, J. M. and Horsfall, F. L., Jr.: The Recovery From Patients With Acute Pneumonitis of a Virus Causing Pneumonia in the Mongoose, J. Exper. Med. 72:595-610 (Nov.) 1940.
33. Eaton, M. D., Meiklejohn, G., Van Herick, W. and Talbot, J. C.: An Infectious Agent From Cases of Atypical Pneumonia Apparently Transmissible to Cotton Rats, Science 96:518-519 (Dec. 4) 1942.
34. Horsfall, F. L., Jr., Curnen, E. C., Mirick, G. S., Thomas, L. and Ziegler, J. E., Jr.: A Virus Recovered From Patients With Primary Atypical Pneumonia, Science 97:289-291 (March 26) 1943.
35. Baker, J. A.: A Virus Obtained From a Pneumonia of Cats and Its Possible Relation to the Cause of Atypical Pneumonia in Man, Science 96:475-476 (Nov. 20) 1942.
36. Blake, F. G., Howard, M. E. and Tatlock, H.: Feline Virus Pneumonia and Its Possible Relation to Some Cases of Primary Atypical Pneumonia in Man, Yale J. Biol. & Med. 15:139-166 (Dec.) 1942.
37. Meyer, K. F., Eddie, B. and Yanamura, H. Y.: Ornithosis (Psittacosis) in Pigeons and Its Relation to Human Pneumonitis, Proc. Soc. Exper. Biol. & Med. 49:609-615 (April) 1942.
38. Eaton, M. D., Beck, M. D. and Pearson, H. E.: A Virus From Cases of Atypical Pneumonia, Relation to the Viruses of Meningopneumonitis and Psittacosis, J. Exper. Med. 78:641-654 (May) 1941.
39. Meyer, K. F. and Eddie, B.: Spontaneous Ornithosis (Psittacosis) in Chickens the Cause of a Human Infection, Proc. Soc. Exper. Biol. & Med. 49:522-525 (April) 1942.
40. Smadel, J. E.: Atypical Pneumonia and Psittacosis, J. Clin. Investigation 22:57-65 (Jan.) 1943.

high titer of complement-fixing antibodies for the psittacosis virus in the sera of patients with atypical pneumonia occurring sporadically in Boston, New York, and other Eastern cities. The former has pointed out the striking similarities between the clinical picture, x-ray, laboratory, and pathological findings in psittacosis and in atypical pneumonia of undetermined etiology. Dingle et al.[20], from serological studies carried out on cases of atypical pneumonia at Camp Claiborne, conclude that viruses of this group could largely be excluded as causal agents in that epidemic. They further suggest that the isolation of one of the viruses of the psittacosis group from patients with atypical pneumonia may be only suggestive evidence of its etiological relationship to the infection, because of the very wide distribution of strains of this virus in birds and animals.

In 1940 Hornibrook and Nelson[28b] reported an outbreak of atypical pneumonia among employees at the National Institute of Health, from three of whom Dyer, Topping and Bengtson[41] isolated a rickettsial organism which they demonstrated to be identical with that previously isolated from cases of Australian "Q" fever.

Obviously, much work must be done before the confusion regarding the etiology of atypical pneumonia can be clarified. The few successful attempts to isolate filtrable agents from patients with this disease provide suggestive but not conclusive evidence in support of the virus etiology of the infection. While viruses of the psittacosis group[28a,37,38,39,40,42], and certain rickettsial agents[41] may all play a part as causative factors in some of the cases currently diagnosed as atypical pneumonia, it seems more likely that one or more as yet unidentified filtrable agents will be found to be responsible for this infection. Because of the possible widespread distribution of different groups of viruses and rickettsial agents in birds, insects, and animals, it is important from both the etiological and epidemiological standpoints, that in the future cases of atypical pneumonia be studied with particular reference to contact with such possible sources of infection.

41. Dyer, R. E., Topping, N. H. and Bengtson, I. A.: An Institutional Outbreak of Pneumonitis; Isolation and Identification of Causative Agents, Pub. Health Rep. 55:1945-1954 (Oct. 25) 1940.
42. Eddie, B. and Francis, T., Jr.: Occurrence of Psittacosis-Like Infection in Domestic and Game Birds of Michigan, Proc. Soc. Exper. Biol. & Med. 50:291-295 (June) 1942.

Treatment

Therapy in atypical pneumonia at present is symptomatic, supportive, and non-specific. The sulfonamide drugs have produced no effect on the course of this disease, and as soon as the diagnosis is established there is probably no indication for their use, except in the rare instance of a complication from secondary invasion by one of the common pathogenic bacteria.

Rarely in the severe cases with cyanosis and dyspnea oxygen therapy is indicated and may be life-saving. Blood transfusions have been used, particularly plasma and whole blood from convalescents[7,9d]. There is certainly theoretical justification for this procedure, but it has been tried too seldom thus far for the proper evaluation of its efficacy.

Isolation of the patient as soon as the diagnosis is suspected is the only preventive measure now available.

Summary

The clinical picture, course, and laboratory findings in primary atypical pneumonia of unknown etiology have been described. Observations on a series of 400 cases are similar to those previously reported. The epidemiology and possible etiology have been discussed, and it is suggested on the basis of available evidence that the disease probably results from infection by one or more filtrable viruses not yet identified.

Abstract of Discussion

Captain W. H. Roper (Fort Bragg): Dr. Berryhill pointed out the scarcity of abnormal physical findings in atypical pneumonia. I do not believe that I would belittle the physical signs quite as much as he seems to. It is true that the physical signs are scarce, but almost invariably at times in the course of the disease, and particularly by the end of the first week, physical signs are present. Physical signs may be, at the outset, distant breath sounds, fluctuation in percussion, dullness to percussion, and "sticky" rales at the end of very deep inspiration.

The disparity between the physical findings, the x-ray findings, and the severity of the disease is outstanding in atypical pneumonia. The x-ray findings may be marked, the physical signs light, and the clinical course mild; or any other combination may be found. The diagnosis may well be made, as it often has been, without x-ray, as Dr. Berryhill mentioned.

The very low degree of communicability of atypical pneumonia is evidenced by the fact that it usually occurs not as an epidemic but sporadically, the cases being spread out among the populace, and by the infrequent occurrence of this disease among the large number of people who are attending patients with the disease.

The neurocirculatory instability of the patient, particularly in the convalescent phase, is extremely important, as Dr. Berryhill has brought out.

Secondary endobronchial invasion sometimes occurs, and it is very important to be able to differentiate between that and other conditions. If the white blood cell count is elevated above 12,000 to 15,000, or if the patient shows other evidence of secondary invasion, then the use of a sulfonamide is very probably justified.

Personally, I feel rather strongly, as do a number of other people, and as Dr. Berryhill has inferred, that atypical pneumonia may be a systemic disease with or without pulmonary involvement.

Dr. J. M. Mewborn (Farmville): I feel that atypical pneumonia is rather more contagious than either of the preceding discussions would indicate. When I have a case in a family most of the members of that family eventually have it. I find, too, that neighbors who visit them usually come down with it, and I think that it is probably contagious through close association.

In my experience mild diarrhea is frequently associated with atypical pneumonia, and in a fairly large percentage of the cases the patient has a severely toxic appearance.

I cannot help but wonder if this is not the same type of infection we saw during the last great war, and if the wide use of sulfonamide drugs has not kept down the secondary pneumonia and materially lowered the death rate. Most of us out in the field use the sulfonamides in these cases, and we are deeply impressed by the lack of most of the complications which we would reasonably expect to follow such a severe systemic disease. In at least 8 or 10 of these cases during the last three months I have made fluoroscopic examinations and have found small amounts of fluid in the chest; in all of these cases it disappeared without drainage, and in no case did empyema develop. I attribute that to the wide use of the sulfonamides.

Dr. Chauncey Royster (Fort Bragg): In the very large number of cases of atypical pneumonia which we have had at Fort Bragg, we have had 3 deaths. One of those happened to be a case in which there was little or no secondary complication, the patient only being sick about five days. The appearance of the lungs at the time of autopsy perhaps explains the wide variety of the physical signs. At autopsy there were seen lesions which ranged all the way from a pure bronchitis with perhaps nothing in the alveoli to a very purulent bronchitis, with the process extending into the interstitial area of the lungs so that there was marked debris at the bottom of the bronchi and the alveoli.

I should like to take issue with those gentlemen who have said, or indicated, that sulfonamides do no harm. In my experience the patients not only are not benefited by the sulfonamides, but many of them are made worse by them. Their use seems to prolong the disease or make the patient worse. We do give sulfonamides in cases with an elevated white count, but whether these are true cases of atypical pneumonia or not, it is hard to say. In such cases the patients do respond rather dramatically to sulfonamides, but in the usual type of atypical pneumonia the patient does not so respond.

Dr. B. E. Rhudy (Greensboro): Something has been said here with reference to cases that occurred during the last war. I had an opportunity of seeing many cases of flu during that period, and, of course, since that time. As to whether the etiological factor is the same in atypical pneumonia and in the old "flu-pneumonia" I am not in position to say, but I do feel that the distribution of the shadow markings of the lungs is entirely different from that which we saw during the last war.

Dr. Wingate M. Johnson (Winston-Salem): I agree with Dr. Rhudy in what he just said about the difference between this pneumonia and the 1918 variety. I think that they are entirely different infections.

Dr. F. R. Taylor (High Point): I believe that there are a group of diseases, caused by closely related viruses and clinically indistinguishable. Until we are in position to do a lot of exhaustive and expensive research and ferret out the causative agents we cannot be sure that we are dealing with the same entity.

Dr. J. B. Bullitt (Chapel Hill): The clinical picture of atypical pneumonia is, to my mind, quite different from the cases of "flu-pneumonia" seen during the last war. We seem to be dealing with quite a number of somewhat different diseases and different conditions from those found during the 'flu epidemic that we had twenty-five years ago; and the cases seen then were probably not all the same entity.

Dr. Berryhill: I want to thank you gentlemen for your discussion, which shows that you have great interest in this very important disease.

I didn't mean to leave the impression that there are no physical signs in atypical pneumonia. The point I would like to leave with you is that you must not expect to find a bronchial breathing and fullness that will knock you down, such as you find in lobar pneumonia.

Dr. Mewborn has raised a very interesting question in his remarks. One may gather the impression from contacts here and there that the disease may be fairly contagious, but I think that, on the whole, as compared with measles, for example, or with 'flu epidemics, the disease is certainly of a low communicability.

There are gastro-intestinal symptoms in many patients, but I think they are, by and large, a minor part of the clinical picture.

Aerial transmission of the influenza virus.—It was not until 1937 that a group of Russian workers headed by Smorodintseff succeeded in producing influenza in human volunteers by allowing them to inhale influenza virus dispersed in fine droplets in the air. Since then aerial transmission of influenza in ferrets has been accomplished. More recently, Smorodintseff, Wells and Henle and our laboratory have been able to produce experimental influenza in mice by the air-borne route. The virus employed, having been passed through several hundred mice following its isolation from a human case, was atomized as a very fine mist into a chamber containing the mice to be infected. We found that an exposure of only 15 seconds to an amount of virus diluted 300,000 times in the chamber air sufficed to produce pneumonic lesions in all the mice. A two-minute exposure resulted in death of all the animals. Even with amounts of virus corresponding to a dilution in the air of one to thirty million, all the mice acquired pulmonary lesions. That influenza virus may remain suspended in air in a viable and infective state for relatively long periods of time was demonstrated by introducing mice into virus-containing atmospheres as long as three hours subsequent to atomization of the virus. All mice became infected. — Robertson, O. H.: Air-Borne Infection, Science 97:497 (June 4) 1943.

LOCAL USE OF SULFADIAZINE, TYROTHRICIN, PENICILLIN AND RADON IN OTOLARYNGOLOGY

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This report is intended merely as a preliminary survey of otolaryngologic therapy utilizing the chemotherapeutic agent sulfadiazine, the bactericidal and bacteriostatic agents tyrothricin and penicillin, and the radioactive agent radon. Further specific evaluations will be forthcoming at the completion of studies extending over the past two years.

Sulfadiazine Solution

Sulfadiazine solution, first developed by Pickrell[1] for the local treatment of burns, is 2.5 per cent sulfadiazine in 8 per cent triethanolamine. The solution has a *p*H of 8.7, is non-toxic, and is readily absorbed by tissues. Local use makes unnecessary the saturation of the entire body and thus prevents various toxic reactions associated with the sulfonamides.

This solution is invaluable in the treatment of the common cold and infections of the pharynx and nasopharvnx, particularly when they are due to beta hemolytic streptococci. Controlled studies for the past two winters on student nurses with acute coryza indicate that the disagreeable symptoms and complications, such as sinusitis and otitis, associated with this disease are due not to the virus, but to secondary bacterial invaders of the mucous membranes. Best results are obtained by instituting early treatment. The nasal passages and pharynx should be sprayed frequently and with a sufficient amount of the solution (10-15 cc. daily) so that by absorption the concentration in the mucous membranes of the nose, nasopharynx and pharynx will become high enough to prevent growth of pyogenic organisms. The nose and pharynx should be sprayed thoroughly every hour, when the patient is awake, the first day, and every two hours from the second to the fifth day. Local shrinking agents should also be used when necessary. Metal parts of the atomizer must not be allowed to remain in contact with the solution overnight, as a corrosive action will take place. If properly used, this form of local treatment reduces the duration of coryza, lessens the disagreeable symptoms, and prevents complications such as otitis and sinusitis.

Tyrothricin

Bactericidal agents derived from microorganisms open up a new and fascinating field of therapy. In 1939 Rene Dubos[2] found that a specific bactericidal agent could be obtained from the aerobic sporulating soil bacterium, Bacillus brevis. By using peptone cultures of this organism, a water soluble and a water insoluble fraction have been obtained. The water soluble fraction is not bactericidal, whereas the water insoluble fraction is highly bactericidal. This bactericidal crystalline material is called tyrothricin. It has been further fractionated into gramicidin and tyrocidine, both of which appear to be polypeptides. Gramicidin is bactericidal in general for gram-positive organisms, while tyrocidine is bactericidal for both gram-positive and gram-negative organisms. The action of gramicidin, however, is believed to be due to interference with one or more metabolic systems of the individual bacterium. Specifically, it may act on the cephalin phospholipid metabolism, inasmuch as cultures rendered bacteriostatic may be made viable by adding the phospholipid cephalin.

Tyrothricin is extremely stable as a powder or in alcoholic solution. It is usually made up in a 2 per cent alcoholic solution. One-half cubic centimeter of this solution in 100 cc. of sterile distilled water gives a 1:10,000 suspension, which from our work appears to be a safe concentration for clinical use, although *in vitro*, dilutions of 1:1,000,000 often kill pneumococci and streptococci, but not staphylococci. It must be emphasized that the tyrothricin group of agents are toxic intravenously and subcutaneously, but are harmless when used locally as a contact agent. In experimental animals intraperitoneal injection appears to be harmless.

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From the Johns Hopkins Hospital.

1. Pickrell, Kenneth L.: A New Treatment for Burns, Bull. Johns Hopkins Hosp. 69:217-221 (Aug.) 1941.

2. Dubos, R. J.: Studies on a Bactericidal Agent Extracted From a Soil Bacillus. J. Exper. Med. 70:1-10 (July) 1939.

Penicillin

The third and most promising bactericidal agent is penicillin, accidentally discovered by Fleming[3] in 1929. This observer found that routine bacterial plates, contaminated with the common bread mold Penicillium, showed zones of inhibited bacterial growth where the mold alighted. There are hundreds of varieties of this mold easily captured almost everywhere, even at high altitudes. Fleming's original Penicillium strain most closely resembles Penicillium notatum. Bactericidal activity varies greatly with different strains.

Penicillium is easily grown in rectangular flat-bottomed bottles on a liquid amino acid medium, at room temperature. In seven to twelve days it entirely covers the surface of the medium with a thick, wrinkled, grey-green growth. The so-called harvesting of the material must be done at the proper moment, as its greatest activity is lost unless it is stopped at *p*H 7 to 7.5. The underlying liquid is then passed through a Seitz filter. The clear, amber-colored filtrate contains the crude bactericidal agent, penicillin. Its strength is determined by titration against standard bacterial cultures.

Penicillin in this liquid form is most unstable and will lose its potency in about four days if left in stoppered bottles at room temperature. However, if the freshly filtered material is kept frozen its activity is maintained for about two weeks. At the present time this is the most practical method for maintaining a supply for clinical and experimental use as a local application. Dry concentrates and the sodium salt have been purified for intravenous use and are somewhat more stable. Likewise, the barium salt and the ethyl and methyl-ester have been reported. However, these more purified types are still in the laboratory stage and are not available except for very carefully controlled experimental clinical trial.

Unlike tyrothricin, penicillin, which is water-soluble, may be given intramuscularly or intravenously as well as used locally. It is absorbed by the subcutaneous tissues and in the gut, and is excreted by the kidneys. Reclamation of penicillin from the urine is possible. Some observations indicate that penicillin may also be concentrated in the gallbladder. This fact might open interesting fields in the treatment of cholecystitis. Penicillin is believed to be somewhat bactericidal, but mostly it acts as a bacteriostatic agent, its effectiveness being due to interference with multiplication of bacteria. Penicillin differs from the sulfonamides in that its action is not nullified by pus, peptones or P-amino benzoic acid. It is inactivated by the acid of the gastric juice, however. According to all indications, penicillin is nontoxic.

In general, penicillin is bacteriostatic for gram-positive organisms—including anaerobic streptococci and anaerobic gas bacilli—and to a much lesser extent for gram-negative bacteria. However, as isolation of the active principle develops, indications point to some degree of inhibitory activity toward all bacteria and perhaps some viruses. Kocholaty[4] has recently reported the isolation of an antibacterial substance called penatin which inhibits the growth of fifty pathogenic and non-pathogenic organisms tested in dilutions of not less than 1:10,000,000.

Clinical Use of Penicillin and Tyrothricin

Clinically, penicillin and tyrothricin have been tested at the Johns Hopkins Hospital for the past two years. These therapeutic agents have been applied locally in a large number of cases, covering every phase of otolaryngology. For a comprehensive and true estimation of values it was found necessary to make a thorough bacteriological study of each individual case. This involved complete studies of each organism and its reaction to tyrothricin and to penicillin at various dilutions. A method of bacterial titration was used.

At present, as was stated earlier, this material is still in the process of correlation and tabulation. However, of the interesting findings noted so far it may be mentioned that there is not only bacterial group sensitivity, but also a bacterial strain sensitivity. In general, Staphylococcus aureus is more susceptible to tyrothricin than is Staphylococcus albus, but pneumococci and streptococci are more sensitive than either of these. Certain strains of the same bacterial group are more sensitive than others. In a group of 60 patients with hemolytic Staphylococcus

3. Fleming, A.: An Antibacterial Action of Cultures of Penicillium, With Special Reference to Their Use in Isolation of B. Influenzae, Brit. J. Exper. Path. 10:226-236 (June) 1929.

4. Kocholaty, Walter: Purification and Properties of the Second Antibacterial Substance Produced by Penicillium Notatum. Science, 97:186-187 (Feb. 19) 1943.

aureus infection, titration showed that 9 (15.3 per cent) were insensitive to tyrothricin and 12 (20.3 per cent) to crude penicillin. Irrigation of the sinuses with the therapeutic agent which most effectively inhibits or kills the infecting bacteria will give better results in acute maxillary sinusitis than in chronic maxillary sinusitis due to the same organism. The explanation for this is that the bacteria in the acute phase are on the surface of the mucous membrane, and in the chronic stage are deep within the glands and submucosal tissue. Tyrothricin is not absorbed and is effective only when it comes in direct contact with bacteria. Penicillin is absorbed to a greater extent, but to be most effective should be in direct contact with the infecting bacteria for several hours. Thus, in chronic infections, these microbiotic agents are much more effective when used to supplement surgical operations. Sometimes, after a period of treatment, certain bacteria become resistant to the therapeutic agent. Bacterial growth curves, using various concentrations of the bactericidal agents, when plotted against time, show that tyrothricin acts almost immediately, whereas crude penicillin reacts after an interval of several hours. It is only through bacteriological studies of each individual case that the therapeutic tools at hand may be used more intelligently. Unless these facts are known, clinical results cannot be evaluated.

By the local use of these bactericidal agents it is believed that the postoperative edema, pain, purulent discharge and consequent formation of infected granulation tissue are greatly reduced or completely abolished. Likewise, postoperative care and hospitalization time is reduced.

Radon

The fourth therapeutic agent, radon, has been used in the Johns Hopkins Hospital for sixteen years for certain otologic conditions. The principles of the recognition, treatment, and prevention of hearing impairment center about the following concepts:

1. Impaired hearing for high tones, with good hearing for low tones, is the earliest symptom of middle ear as well as of inner ear deafness in children.
2. Recurrence of adenoids after operation on young children is so common that it must be regarded as normal. This recurrent lymphoid tissue may impair the function of the eustachian tubes and cause a low grade tubo-tympanic catarrh which may lead to chronic progressive deafness.
3. Recurrent or hyperplastic nodules of adenoid tissues in and around the pharyngeal orifice of the eustachian tubes are so located that they cannot be removed surgically.
4. Every type of deafness seen in adults is also found in children. In most types the earliest symptom is a loss of hearing for high tones, and for their recognition the tones above 8000 double vibrations must be tested.
5. In order to have good hearing the eustachian tubes must function normally. Impaired function of the eustachian tubes in children is caused by regrowth of the lymphoid tissue in the nasopharynx. In order to discover this condition the nasopharynx must be examined with the nasopharyngoscope.
6. Early recognition of impaired hearing for high tones, long before the hearing of speech is affected, and radiation of the nasopharynx to restore the patency of the eustachian tubes, is the only method for the prevention of progressive deafness of this type. The only hope is early recognition and treatment, before irreparable damage to the mucous membrane of the middle ear and ossicular chain has occurred.
7. Lymphoid tissue is so sensitive to radiation that the dose employed in the treatment of the nasopharynx is far below the amount that could cause any irritation or injury to the mucous membranes or surrounding structures.

Aside from the preventive treatment of deafness, the applications of radon therapy have been so broadened and extended that today it is one of the most useful therapeutic agents in the field of otolaryngology.

Radon is applicable to patients of all ages. Especially in infants and young children, recurrent otitis media, caused by chronic infection of the nasopharynx associated with lymphoid hyperplasia, usually can be cured promptly if radon is applied to the nasopharynx and sulfathiazole powder insufflated locally into the canal, after carefully removing all discharge. Nasopharyngitis and the associated chronic cough are also benefited by this procedure. Radon is a most useful

agent in cases of nasal obstruction due to hypertrophied adenoids in infants. The frequency and severity of acute coryza are reduced when lymphoid tissue has been thoroughly removed, either by surgical operation or irradiation.

Radon is also of value to patients who are either too ill or too poor a surgical risk for operative procedure, and for those in whom the adenoids have recurred following surgical removal. This is common in children. Radon is also used for patients whose adenoids alone are causing symptoms. The use of radon on patients in the out-patient department and in private offices often makes hospitalization, anesthesia and surgical operations unnecessary. This is particularly valuable in this period when almost all hospitals are overcrowded.

With a word of caution, we offer an observation as yet unproved. About nine months ago it was observed that among the hundreds of children being treated for the prevention of deafness there were a number with asthma. Many were allergic to the usual inhalants, but had failed to respond to desensitization, removal of the allergic agent, or change in diet. These patients had hypertrophied adenoids, and a history of frequent colds associated with asthmatic attacks. Many required adrenalin injections to relieve the acute attacks. Typical asthmatic attacks occurred at intervals, varying from two or three days to a month. Some had a seasonal relationship. Following radon treatments the severity and frequency of the attacks became less, and in some patients the asthma disappeared altogether. One patient with a history of weekly attacks has had no asthma during six months of observation.

We have under way a research program for adult and child asthmatics, in which each case is carefully studied from the pediatric, the otolaryngologic and the allergic-medical standpoint. Only a long-range program will determine the validity of the above observations. Even if only certain types of asthmatics are benefited, the radon treatment will be worth while.

Theoretically, the effect of radon applied to the nasopharynx in these cases might be due to reduction of secretions, to changes in the absorption of allergic substances by nasal and nasopharyngeal tissue, or to removal of the nasopharyngeal "culture tube" where sensitizing bacteria may thrive.

Summary

A 2.5 per cent sulfadiazine solution spray is non-toxic, is rapidly absorbed by mucous membranes, and when used frequently and in sufficient amounts will inhibit the growth of pyogenic organisms, particularly of the beta hemolytic Streptococcus, in the upper air passages. It is particularly valuable in the treatment of infections of the pharynx and nasopharynx and for the control of the associated cough. If treatment of acute coryza is started early there is a reduction in the duration of the disagreeable symptoms and an almost complete absence of complications.

Tyrothricin, water insoluble, is isolated from cultures of the aerobic sporulating Bacillus brevis and has been further fractionated into gramicidin and tyrocidine. When used locally in suspension it inhibits the growth of certain organisms, in general the gram-positive group. It is extremely toxic intravenously. It is most valuable in the treatment of acute infections, and as a supplement to surgery in the treatment of chronic infections.

Penicillin is not toxic, either locally, intravenously, or orally. It is water soluble and is isolated from the mold Penicillium notatum. It interferes with multiplication of bacteria, and is slower acting than tyrothricin. In general it inhibits the gram-positive group of bacteria, but as isolation of the active principle continues, there are indications that it may be effective against a much broader group of bacteria.

Organisms may become resistant or fast to both penicillin and tyrothricin. Some strains of a bacterial group (especially of staphylococci) may be entirely unaffected by either agent, or may vary enormously in their sensitivity. Anaerobic streptococci, and the Lancefield B group, so often found in otolaryngological conditions, are not affected by sulfonamides, but are sensitive to both tyrothricin and penicillin. For a better evaluation and interpretation of clinical results we must make bacteriologic studies on each patient.

Radon or radium salts, applied through a small applicator to the nasopharynx, has proven itself invaluable in the prevention and treatment of certain forms of deafness associated with obstruction of the eustachian orifices. If it is carefully used there are no burns, crust formations or disagreeable

symptoms following treatment. This is based on observations at the Johns Hopkins Hospital on its use in children and other patients for the past sixteen years. In many cases, end results are more satisfactory than those following surgical removal of the adenoids, since lymphoid tissue is an integral part of the mucous membranes of the nasopharynx and is so diffuse that it cannot all be removed at operation. Recurrence after operative removal is so commonly found that it must be regarded as normal.

Aside from its use in the treatment or prevention of deafness, irradiation has wide uses in many other conditions of the nasopharynx. Observations on its use in patients with asthmatic bronchitis are mentioned.

In conclusion, the object of this report is to arouse interest in these four local therapeutic agents, so that their larger use may prove and extend their true values.

SOME EPIDEMIOLOGIC ASPECTS OF POLIOMYELITIS, WITH REPORT OF FIFTEEN CASES

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The lack of any certain knowledge regarding epidemiology, the difficulties of diagnosis, and the uncertainty regarding suitable therapeutic measures have made poliomyelitis one of the most trying problems which confront the family physician and the health officer. Likewise the lack of effective methods of control and the dread of paralysis have stamped it on the public mind as a peculiarly terrifying disease, in spite of the relatively low rate of attack.

Heine[1] established poliomyelitis as a clinical entity a little more than a century ago. Most of our present knowledge of this disease, however, has gradually evolved from the medical investigations of the past three decades.

The theory that poliomyelitis was due to a spontaneous or primary degeneration of the anterior horn cells of the spinal cord was generally accepted until 1909, when Landsteiner and Popper[2] transmitted the disease to monkeys by intraperitoneal inoculation with a suspension of human poliomyelitic nerve tissue. This original method of transmission has become of increasing interest in the light of the more recent theories on the pathogenesis of this disease.

Shortly after the successful inoculation of monkeys with infected human tissues, Flexner and others[3] demonstrated that the disease could be transmitted indefinitely from animal to animal, thereby providing a firmer foundation for the theory that the disease is infectious. It was also noted during this series of experiments that there is a wide variation in the virulence of different virus strains[4]—a fact which had frequently been pointed out in previous epidemics of human poliomyelitis.

A strain of streptococci was next implicated by a number of investigators[5] as the etiologic agent; however, evidence which successfully refuted this view was shortly brought forth[6], and the case against this theory was finally closed when it was shown that the streptococcus was a secondary invader[7].

Evidence pointing to the virus nature of the disease has continued to accumulate, thereby supporting Flexner's observations in the use of the Berkfeld filter in his animal-to-animal experiments.

A knowledge of the mode of transmission and portals of entry of the poliomyelitic virus are essential for the successful control of this disease, and consequently are of particular interest to the epidemiologist.

The view, which has been widely held, that the port of entry is the nasopharyngeal

Read before the Health Officers' Section of the North Carolina Public Health Association, Raleigh, May 10, 1943.

1. Heine, J.: Beobachtungen ueber Laehmungszustaende der untern Extremitaeten und deren Behandlung, Stuttgart, F. H. Koehler, 1840.
2. Landsteiner, K. and Popper, E.: Uebertragung der Poliomyelitis acuta auf Affen, Ztschr. f. Immunitaetsforsch u. exper. Therap. 2:377-390, 1909.
3. Flexner, S. and Lewis, P.A.: The Transmission of Acute Poliomyelitis to Monkeys, J.A.M.A. 53:1639 (Nov. 13) 1909.
4. (a) Flexner, S., Clark, P. F., and Amoss, H. L.: A Contribution to the Epidemiology of Poliomyelitis, J. Exper. Med. 19:195-204 (Feb. 1) 1914. (b) Flexner, S. and Amoss, H. L.: Immunizing Strain of Virus of Poliomyelitis, J. Exper. Med. 39:625-630 (May) 1924.
5. (a) Rosenow, E. C.: Report on the Treatment of 58 Cases of Epidemic Poliomyelitis With Immune Horse Serum, J. Infect. Dis. 22:379-426 (April) 1918; (b) Rosenow, E. C.: Treatment of Acute Poliomyelitis With Immune Horse Serum, J.A.M.A. 71:433-438 (Aug. 10) 1918; (c) Nuzum, J. W.: The Production of an Antipoliomyelitic Serum, J.A.M.A. 68:24-25 (Jan. 6) 1917; (d) Mathers, G.: Some Bacteriologic Observations on Epidemic Poliomyelitis, J.A.M.A. 67:1019 (Sept. 30) 1916; (e) Mathers, G.: The Etiology of Acute Epidemic Poliomyelitis, J. Infect. Dis. 20: 113-124 (Jan.) 1917.
6. (a) Bull, C. G.: The Pathologic Effects of Streptococci From Cases of Poliomyelitis and Other Sources, J. Exper. Med. 25:557-580 (April) 1917; (b) Amoss, H. L. and Eberson, F. J.: Therapeutic Experiments With Posenow's Anti-Poliomyelitic Serum, J. Exper. Med. 27:309-317 (Feb.) 1918; (c) Amoss, H. L. and Eberson, F. J.: An Experimental Test of Nuzum's Antipoliomyelitic Serum, J. Exper. Med. 28:323-331 (Sept.) 1918.
7. Long, P. H., Olitsky, P. K., and Stewart, F. W.: Role of Streptococcus in Experimental Poliomyelitis of Monkey, J. Exper. Med. 48:431-448 (Sept.) 1928.

region and more specifically the olfactory area of the nasal mucosa, has rested largely on evidence that the disease could be produced by injecting the virus into the tonsillar-pharyngeal region of the experimental animal and that the animal could be protected by blockage of the olfactory tract. However, there is a growing belief, based on rapidly accumulating evidence, that there are several ports of entry and that the olfactory bulb route, so commonly used in experimental work, is apparently of little importance in the pathogenesis of poliomyelitis in man.

The intestinal tract is under strong suspicion as a frequent port of entrance. Numerous investigators[8] have found the poliomyelitic virus in feces and sewage, and in the intestinal wall itself. These findings would suggest a huge potential reservoir of infection; however, the comparatively low attack rate, when taken with the evident fact that a high percentage of the population has an acquired immunity, forces one to seek other factors in the pathogenesis of this disease.

Toomey[8b] has suggested that the poliomyelitis virus has an obligate affinity for grey nerve fibers and that healthy myelin of peripheral nerve fibers stops the spread of the virus to the central nervous system. He suggests, furthermore, that any damage or injury to the peripheral nerves, either mechanical or physiological, creates conditions whereby the virus can more easily reach the grey nerve fibers. This theory would serve to explain many of the apparent inconsistencies in the epidemiology and pathogenesis of poliomyelitis.

The role of mechanical trauma and strain in the production of this disease has frequently been pointed out[9]. Mueller[10] believes that the preceding trauma is a very important factor in the production of the disease and suggests that the fever which usually precedes the meningeal symptoms is due to other infections, which produce an infectious type of trauma. He also points out that such things as overexertion, excessive sun exposure, and mechanical injury may all act as traumatic factors in the production of the disease. The increased incidence, particularly of the highly fatal bulbar type, following tonsillectomies[11] could be explained on the basis of this theory.

Deficiencies of certain vitamins[12], notably B and C, have been suggested as another factor predisposing to the development of poliomyelitis; however, preliminary studies on experimental animals[13] would indicate that a maximum natural resistance to the virus of poliomyelitis is obtained from a minimum full maintenance level of thiamin intake.

Report of Cases

A clinical study[14], with particular emphasis on individual and environmental factors, was made on 15 cases of poliomyelitis which occurred in Caldwell County during the summer months of 1942 and January, 1943. The attack rate, based on the area involved, was 0.4 per 1,000 population. The ages of the patients ranged from 6 months to 13 years, with an average of 4.6 years. There were 2 deaths, both of which were due to the bulbar type of the disease.

The first case occurred in the first two-week period of July, 1942, the epidemic gradually attaining a peak in the last half of August, when 4 cases were reported. Fol-

8. (a) Sabin, A. B. and Ward, R.: Natural History of Human Poliomyelitis: Distribution of Virus in Nervous and Non-Nervous Tissues, J. Exper. Med. 73:771-793 (June) 1941; (b) Howe, H. A. and Bodian, D.: Effect of Spinal Transection on Spread of Poliomyelitis Virus in Nervous System of Rhesus Monkey; Refractoriness of Nerve Cells to Poliomyelitis Virus After Interruption of Their Axones; Poliomyelitis in Chimpanzee; Neuropathological Evidence on Portal of Entry Problem in Human Poliomyelitis, Bull. Johns Hopkins Hosp. 69:86-91, 92-133, 149-181, 183-215 (Aug.) 1941; (c) Bodian, D. and Howe, H. A.: Rate of Progression of Poliomyelitis Virus in Nerves; Pathology of Early Arrested and Non-Paralytic Poliomyelitis, Bull. Johns Hopkins Hosp. 69:79-85, 135-147 (Aug.) 1941; (d) Trask, J. D., Paul, J. R. and Vignec, A. J.: Poliomyelitic Virus in Human Stools, J. Exper. Med. 71:751-763 (June) 1940; (e) Paul, J. R., Trask, J. D. and Gard, S.: Poliomyelitic Virus in Urban Sewage, J. Exper. Med. 71: 765-777 (June) 1940; (f) Paul, J. R., Trask, J. D. and Culotta, C. S.: Poliomyelitic Virus in Sewage, Science 90: 258-259 (Sept. 15) 1939; (g) Howe, H. A. and Bodian, D.: Portals of Entry of Poliomyelitic Virus in Chimpanzee, Proc. Soc. Exper. Biol. & Med. 43:748-751 (April) 1940; (h) Toomey, J. A.: Attempts to Isolate Poliomyelitis Virus From Stools of Human Beings and Experimental Animal, Arch. Pediat. 56:693 (Nov.) 1939.

9. Editorial: Trauma and Strain in Relation to Poliomyelitis, J.A.M.A. 116:2506 (May 31) 1941.

10. Mueller, H.: Zur Frage der Disposition zu Poliomyelitis, Montaschr. f. Kinderh. 87:263-269 (March 21) 1941.

11. (a) Fischer, A. E., Stillerman, M. and Marks, H. H.: Relation of Tonsillectomy and Adenoidectomy to Incidence of Poliomyelitis, With Special Reference to Bulbar Form, Am. J. Dis. Child. 61:305-321 (Feb.) 1941; (b) Krill, C. E. and Toomey, J. A.: Multiple Cases of Tonsillectomy and Poliomyelitis, J.A.M.A. 117:1013 (Sept. 20) 1941; (c) Aycock, W. L.: Tonsillectomy and Poliomyelitis, Epidemiologic Considerations, Medicine 21:85-94 (Feb.) 1942.

12. (a) Helms, Karen: Acute Anterior Poliomyelitis and Vitamin B Deficiency, M. J. Australia 1:717-723 (June 14) 1941; (b) Toomey, J. A.: Absorption of Poliomyelitic Virus by Possibly Deficiently Medullated Nerves, Am. J. Dis. Child. 60:548-551 (Sept.) 1940.

13. Foster, C., Jones, J. H., Henle, W. and Dorfman, F.: Response to Murine Poliomyelitis Virus (Lansing Strain) of Mice on Different Levels of Thiamin Intake, Proc. Soc. Exper. Biol. & Med. 51:215-216 (Nov.) 1942.

14. Valuable assistance in the compilation of these statistics was rendered by Miss Ruth Council, Division of Crippled Children, State Board of Health, Mrs. R. L. Bailey, Public Health Nurse, Caldwell County, and by various physicians of Caldwell County whose cases were used in this survey.

Table 1

Seasonal Incidence of Poliomyelitis in Caldwell County Based on Bi-Weekly Reports

	Number of Cases			
No Cases Reported from February through June, 1942				
	1	2	3	4
July, 1942				
First half				
Second half				
August, 1942				
First half				
Second half				
September, 1942				
First half				
Second half —None				
October, 1942				
First half				
Second half —None				
November, 1942				
First half —None				
Second half —None				
December, 1942				
First half —None				
Second half —None				
January, 1943				
First half				
Second half —None				

lowing this there was an abrupt drop in the incidence of the disease, with only 2 cases occurring in the months of September and October; however, there were 2 more cases during the second week of January, 1943. Most of the cases were in widely scattered sections of the county, 73 per cent being found in the rural areas; and in only one instance could a history of direct contact with another case be established.

It was found that 80 per cent of the children who developed poliomyelitis in this outbreak lived within a short distance of a stream, in no case being farther than 150 yards away. One-third of the patients had either played or had been swimming in these streams within two weeks before the onset of the disease. Seven cases occurred in the area drained by one particular creek, while 3 patients lived on another stream. These two areas contained two-thirds of all the cases reported in the county.

Sixty-six per cent of the patients gave histories and exhibited evidence of numerous insect bites which had occurred within twelve days before the onset of the disease. Unfortunately, the type of insect could not be determined in the majority of cases.

Forty per cent of the patients gave a history of being unusually chilled or fatigued within forty-eight hours before the appearance of the first symptoms. Usually this fatigue or chill resulted from swimming.

The onset of paralysis of the left arm in one case occurred twenty-four hours after the patient had bruised the arm in a minor accident, while another patient showed definite clinical evidence of vitamin B deficiency.

Since no experimental animals were used in the study of this particular outbreak of poliomyelitis, the results are naturally inconclusive; however, the clinical facts tend to bear out certain contentions of previous investigators—namely, that a huge store of poliomyelitis virus is widely disseminated in nature; that contact *per se* is not sufficient to explain the transmission of the disease; and that such things as trauma, fatigue, chilling, and infection often act as predisposing factors in the production of the disease.

Control Measures

What control measures should be taken by the health officer, in view of our limited knowledge of the epidemiology of this disease? While we have no very effective methods of control, there are certain measures, based on our more recent knowledge, which we are justified in taking.

1. *Quarantine Restrictions:* While evidence indicates that poliomyelitis is very mildly contagious, we are still justified in applying proper isolation and quarantine measures in the individual case. The question of the advisability of closing schools, churches, and theaters often arises during an epidemic. As a rule we are probably not justified in closing these places to children; however, it should not be forgotten that there is often a concurrent outbreak of fear which is about as difficult to handle as the actual poliomyelitis epidemic. The apprehension of the public is often allayed by applying community-wide quarantine restrictions.

2. *Swimming Pools:* As a rule, swimming pools should be closed to children during an epidemic of poliomyelitis. This view is based on two facts—namely, that there is danger of water being contaminated by sewage, and that ordinary chlorination of water does not destroy the poliomyelitis virus[15].

3. *Personal Hygiene:* The public should be informed of the dangers of such predis-

15. Sabin, A.B.: Etiology of Poliomyelitis, J.A.M.A. 117:267-269 (July 26) 1941.

Table 2
Summary of Case Records

Case	Race	Sex	Age	Chill	Fever	Nausea	Vomiting	Headache	Drowsiness	Irritability	Sore Throat	Stiff Neck	Family History of Polio	Unusual Chill or Exhaustion Prior to Symptoms	History of Recent Insect Bites	Played in Water Within Two Weeks of Onset	Kidney Treatment	Cost Method of Treatment	Symptomatic Treatment	Died
1	W	M	25 mo.		X	X	X	X				X		X	X	X			X	
2	W	F	23 mo.		X			X		X		X			X			X		
3	W	F	7 yr.	X	X	X	X	X				X	X	X	X	X	X			X
4	W	F	6 yr.		X				X	X	X		X(?)	X	X	X			X	
5	W	M	4 yr.	X	X	X		X	X			X							X	X
6	W	F	13 yr.		X			X			X			X					X	
7	W	M	4 yr.		X							X							X	
8	W	F	4 yr.		X	X	X		X	X					X	X			X	
9	W	M	23 mo.		X										X			X	X	
10	W	F	20 mo.		X			X		X					X		X			
11	W	M	6 mo.		X	X	X			X	X		X		X		X			
12	W	F	10 yr.		X			X	X	X		X		X	X	X	X			
13	W	M	6 yr.		X	X	X	X				X			X		X		X	
14	W	F	4 yr.		X	X	X	X						X			X			
15	W	M	32 mo.		X	X		X	X	X			X				X			

posing factors as overexertion, chilling, overexposure to the sun, and trauma.

4. *Disinfection:* The virus of poliomyelitis is readily destroyed by oxidizing agents such as hydrogen peroxide, potassium permanganate, and ultra-violet rays. Heat of 55 C. for five minutes destroys the virus. It should be remembered that the causative agent is particularly resistant to the phenol preparations and to ordinary water chlorination.

5. *Sewage Control:* All excreta of poliomyelitis patients should be treated with potassium permanganate or some other oxidizing agent. Sewage should not be discharged into any stream.

6. *Water:* Unless we are reasonably sure that water is not contaminated it should be boiled during the period of a poliomyelitis outbreak.

7. *Tonsillectomies:* Children who have had recent tonsillectomies are much more susceptible to the bulbar type of the disease; therefore, operations on the nose or throat should be postponed in those localities where poliomyelitis is prevalent.

8. *Insect Control:* There is some evidence that the poliomyelitis virus may be carried by insects, and therefore control measures should be taken.

Summary

1. A review of literature on the epidemiologic aspects of poliomyelitis is presented.
2. A study of 15 cases of poliomyelitis which occurred in Caldwell County is made, with particular emphasis on the epidemiology of the disease.
3. A summary of the public health measures which should be taken in attempting the control of poliomyelitis is given.

A METHOD OF INTRAVENOUS IODINE MEDICATION FOR THE RAPID PREPARATION OF PATIENTS WITH DIFFUSE TOXIC GOITER FOR OPERATION

ADDISON G. BRENIZER, M. D.
CHARLOTTE

In 1867, Trousseau used by mistake tincture of iodine, instead of tincture of digitalis, in a severe case of exophthalmic goiter, with marked benefit. It was not until the publication of Plummer's classic work, however, that the use of iodine became general.

Twenty years ago one of my patients was in a thyroid crisis following operation. She was delirious, restless, and incoherent, with a temperature of 107 and a pulse rate almost beyond count. Desperately, as when one massages a failing heart or injects adrenalin into it, I gave this patient 100 drops of Lugol's solution in 500 cc. of salt solution, and repeated the dose. The patient was better within two hours, and by the next morning the delirium had subsided, the temperature was down, and the pulse was slower. The remarkable part of the picture was not so much the slowing of the pulse as the improvement of the toxemia.

It is my belief that the mechanism of the beneficent action of iodine depends upon the conversion of toxic diiodotyrosine into thyroxin.

I have used the following method of preparing patients with diffuse thyrotoxemia for operation. Toxic nodular goiters can also be so prepared, but their response is not so prompt as that of the diffuse thyrotoxic type.

The patient is kept at absolute rest in the hospital, with sedation and a high calorie diet. A daily intravenous injection of 500 to 1000 cc. of 10% glucose with 100 to 150 drops of Lugol's solution or organidin is given. The metabolic rate decreases rapidly and the patient is usually ready for operation within a week. The clinical picture of improvement and the patient's ability to hold his breath are the chief criteria for operation. The operation should not be performed, of course, without due consideration of the usual laboratory procedures: the hippuric acid test of liver function, the cholesterol content of the blood, galactose tolerance determinations, and basal metabolic rates. After all, however, the clinical evaluation of the patient is the most important criterion. It is rare that a patient so treated for five days, who can hold his breath for three-fourths of a minute, cannot tolerate a thyroidectomy. The same treatment is continued for two or three days following the operation.

NON-MEDICAL VIEWS OF THE WAGNER-MURRAY BILL

SOCIALIZED MEDICINE WAGNER-MURRAY SENATE BILL 1161

JUDGE L. R. VARSER
LUMBERTON

The United States began as thirteen independent, though weak and struggling, colonies formed into states along the Atlantic coast. When the first effort at government, called a Confederacy, proved insufficient on account of its weakness and lack of coherence, the Federal Constitution was proposed and adopted in practically its present form, and then amendments were adopted for the purpose of declaring certain inalienable rights. These rights preserved in the Federal Constitution were not created by it, for they are a part of the rights of every free man, and the purpose of declaring them in these Constitutional amendments was to preserve and to secure to free men what was theirs already.

It was provided in the Tenth Amendment that the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively and to the people. When this Constitution was adopted, each of the several states had its own constitution. North Carolina adopted its constitution for the preservation of the American Union and of our civil, political and religious liberties, and for the more certain security thereof. In its Declaration of Rights it preserved the great, general and essential principles of liberty and free government and recognized that all men are endowed by their Creator

Read before the Rotary Club, Lumberton, on August 27, 1943.

with certain inalienable rights, including life, liberty, the enjoyment of the fruits of their own labor, and the pursuit of happiness. Until we cease to be men, we have the power to preserve these rights and to prevent the destruction of these rights, or any encroachment thereon. The people of these several states were unwilling to follow the course of England in respect to its Constitution, but determined that our Constitutions, state and federal, should not be left to the varying views of any legislative or judicial department of the government, but should be protected by and preserved in written documents.

The government thus set up in the several states and in the federal union was a republic—a representative democracy with a judicial department to declare what the law is, with an executive department to enforce the law as written, and with a legislative department to exercise the powers granted in the Constitution. This is not a socialistic government, whatever may be the indications and practices of any particular administration. The power does not exist to make it so; the courage and the character of its free men will keep it a republic for free men, although there are, and may be, efforts to make it into a socialistic state, with total powers. It may be observed that whenever the government increases in power its citizens decrease in happiness.

The Cost of Socialized Medicine

The proposed Wagner-Murray Bill is more far-reaching than any socialist proposal ever introduced in the Congress. It seeks to take from the individual who is within its purview all rights with respect to his medical care, and that of his family, and in lieu thereof affords him political medical service under the Surgeon General of the United States, who is created a dictator in all things medical, surgical and sanitary. Its humanitarian purpose is to take charge of a vital segment of the life of the people so that they shall not have the privilege of competent medical service of their own choosing.

Financial Cost

The cost proposed is staggering. The initial requirement for the set-up is $3,000,000,000.00. With this sum its dictator-head could allocate:

$600,000,000.00 for administrative cost;

$600,000,000.00 for the salary, average, of every effective physician in the United States at $5,000.00 per year;

$671,683,950.00 to buy every available bed in all non-government owned hospitals, for 365 days each year at $5.00 per day;

$959,750,162.50 to pay $2.50 per day for every government-owned hospital bed for 365 days;

$168,565,887.50 for drugs and medicines.

Cost in Service

This plan will substitute bureaucrats and politicians for doctors. It is possible that a person may be a member of all three of these groups, but it is not probable. Of course, one may be a doctor and join the other two groups, but he will then cease to be an effective physician or surgeon. It is necessary if one is a bureaucrat that he also be a politician, and if this bill is enacted into law all politicians will be bureaucrats. This bill will lower the standards of the medical profession. It will be a legitimate construction of the powers sought to be conferred on the Surgeon General that he prescribe the standards. He has the express powers to establish qualifications for specialists; to determine the number of individuals for whom any physician may provide service; to determine arbitrarily what hospitals or clinics may provide service for patients; to establish fee schedules for services; to hire doctors and to establish rates of pay—possibly for all doctors. This bill as proposed is so broad that it will destroy the whole American system of medical care. The history of such practices shows conclusively that the standards of the medical profession are lowered and the knowledge of physicians is materially and progressively lessened. This is the necessary result when individual enterprise, ambition and the desire to excel are stricken down.

Cost to the Public

The public has not demanded this drastic adoption of socialism; neither have the sick people or the doctors clamored for it. It is a creature pure and simple of the politicians who believe in these socialistic practices. It certainly has no relation to the conservation of public finance. It will require a tax of 12 per cent on all salaries up to $3,000.00—6 per cent to be paid by the employee and an equal amount to be paid by his employer. The public will immediately change its attitude toward physicians and surgeons. You

cannot select your doctor unless your selection is approved by the powers that be. You will have political service and not medical service. The confidential relation between patient and physician will be destroyed and an attitude of antagonism between the patient and the politically selected physician will be substituted in its stead. The public will lose, not only the enormous sum of money contemplated, but the personal interest of the physician, confidence in the physician and that high quality of service that comes from the individual responsibility which the physician now carries in his professional relations. There will be no more discoveries as the result of individual ambition. There will be no motive for individuals to endow medical research and medical education. It will be a State matter and the State will control, not only what the physician does, but what he thinks. Doctors will become automatons, and the dictator Surgeon General will be the master.

Conclusion

This scheme cannot work. Experience teaches that it is impracticable. There is no demand for it, except from the politicians who desire to change the existing order. The chief features of this scheme are that it will involve a limitless expenditure of money which the taxpayers shall pay and that it will include within its terms some thirty million people and thereby, in view of the large number of lay-employees who will have jobs in the gigantic scheme, it will be a powerful political organization. It will remove one more individual obligation and drive us one step nearer slavery.

The lay-public and the doctors can defeat this vicious scheme. It will take work. Its proponents are organized and are already employed by the government, or are drawing salaries therefrom in political jobs. The bill is pending in both the Senate and the House of Representatives. It will be heard by the Senate Finance Committee and the House Ways and Means Committee. It is necessary, if this movement is to be defeated, that every man shall do his duty.

WHAT TO DO IN CASE OF GALL-STONES
or
Medical Care Under The Wagner Act

This is a little drama which might take place in the office of your favorite doctor if the Wagner-Murray-Dingell Bill is passed by Congress.

By Dougald Coxe
Red Springs, N. C.

Time: April, 1945 - Mid-Morning
Scene: Your doctor's office

Dramatis Personae

The doctor.....Dr. Jason McLean
Civil Service Nurse.....Miss Bee Bureaucracy
Voice on the phone.....McGillicuddy
Jane, John and Bobby Citizen.....Patients
Johnny Serviceman....Just home from the Pacific, and a veteran of North Africa

Music — Lament from "Hippocrates"....Poli Titian

The curtain rises. Seated at a desk, upstage center, is Dr. McLean—a genial man of the old family-physician type. Rugged and of an independent nature, he is not too well dressed. He is working rapidly and with evident distaste on a pile of papers, quite obviously government forms.

To one side, back of desk, is a row of new files conspicuously marked "Property of U. S. Government." At other side is door marked:

Consultation Room

Arranged and Equipped for Minor Operations
and General Medical Practice by
U. S. HEALTH DEPARTMENT
Grove City Division
CHESTER P. McGILLICUDDY, Chief Supervisor
Phone CAP-itol 7966

Equipment Inspected and Approved
By
John P. Ravioli, District Inspector

Accounts Audited and Approved
By
Angus J. Greene, Comptroller Area II

Patient Limit
Adults.....1975
Children..... 525

All Complaints of Patients Are
To Be Sent Direct to
Hon. Cyrus K. John, Supreme Director
U. S. Public Health Service
Washington, D. C.

Dr. McLean—(hangs up telephone receiver — calls loudly)—Miss Bee.

(Miss Bureaucracy enters from right, downstage, through door marked "Reception Hall." She's small, young and wears her U. S. Health Dept. Uniform with mingled awe and pride. She carries a pile of papers.)

Miss B—Yes, Dr. McLean.

Dr. M—Have we completed form M-3464? I know we have mailed the usual daily and weekly reports. I have just finished the hourly reports up to 8:30 today. But I see no record of our semi-monthly M-3464 in the files. District Chief Supervisor McGillicuddy has been on the phone a half-dozen times

in the last half-hour saying the M-3464 has not reached him yet.

Miss B—I have it here now. There are so many questions to answer—16 pages of them. And they wanted information on so much matter of which we had no record, I have been on the other phone trying to get it from the various patients we have treated during the past two weeks.

Dr. M—Have any patients come in? Are there any real sick ones? Maybe we had better attend to them before we finish these reports.

Miss B—Yessir. There are several out there. One or two seem to be in a pretty bad way. There's one coming in now from the mill. He had a leg cut off down there. Somebody at the plant gave him first aid. I was afraid to mention it, though, until we got off these reports.

Dr. M—Bring him in. Now! To the devil with the reports if the man is bleeding to death.

Miss B—(turning pale) Yes,s-sir! But you know how Mr. McGillicuddy is. And his messenger boy will be here any minute now for the reports.

(She goes to the reception room. The men bearing a stretcher bring the injured patient through the office and go into the consultation room. Doctor and nurse follow. The office is quiet and empty for several minutes, then the phone rings.)

Miss B—(entering) Hello! Dr. McLean's office, Grove City sub-division United States Public Health Department. Nurse Bureaucracy, No. 44-47-2982 speaking.

Voice—Is that damn lazy Dr. McLean there?

Miss B—Yes sir—but he is operating.

Voice—Tell him to come to the phone. Operation or no operation I've gotta have report M-3464 right away. He's always late with those things.

Miss B—But the patient is about to bleed to death.

Voice—Well—let him bleed. I've gotta speak to McLean.

Nurse—Yessir. (She goes to door and calls Dr. McLean.)

Dr. McLean—(His voice is heard through door). Miss B., tell that insistent scoundrel that I will send the report when I get through this operation, and not before. I was trained when a doctor's first consideration was his patient and no stinking job-holder is going to make me change from that.

Miss B—(into phone)—Mr. McGillicuddy, Dr. McLean says the report is finished, and is ready for your messenger to pick it up. Goodbye. (She rushes back into the consultation room.)

(A brief time elapses. Dr. M. and Miss B. enter and sit at the desk.)

Miss B—(after searching through a pile of forms) Here's an order from Washington, which was approved and sent down from district headquarters this morning. It gives you permission to go out to the old mill to see that woman who had the pleurisy. That Mrs. Graves. Too bad she died before this order came.

Dr. M—I went to see her. But the Health Supervisor was so late in sending any information about the case that she was past the aid of medicines before I went. If her family had tried to get me first, instead of one of those supervisors, we might have saved her. I had her moved to a hospital the minute I saw her. But you see the application was put in while the supervisor was attending a conference. The application lay on her desk for three days before I got it. Then the bungle-boys down at the admission office kept her on the ambulance for four hours before they would admit her for treatment.

(Enter the Citizen family.)

John Citizen—Doctor, I want to get on your patient list.

Miss B—How many are there in your family?

John C—Three.

Miss B—(looks at registration list) We can admit two of you to our list now, and maybe we can get the other one on later.

John C—You mean you can take two of us? Why not all three?

Miss B—Well, you see, we are not allowed to have but 1975 adult persons on our list, and 525 children. Well, we've got 1974 adults on our lists now, and only 300 children. We can take either you or your wife and the child, but the doctor can't take both you and your wife.

(An ex-soldier, still in uniform, has come into the office during this conversation. An old friend of the doctor, he loudly exclaims.)

Soldier—Say, Doc! What the Hell is this. You mean we've been fighting for the last three years for this kind of thing? Can't have the doctors we want. Can't get our old jobs back if we don't join the union. Can't do this, nor that. We might as well have let the Germans and Japs take us over. All this government control sounds just like the stuff we've been fighting them for. I just came from the factory. They promised me my job back, all right. But, be-dammie if they didn't tell me I had to join a union. Some unions are all right, I guess. But that bird Lewis just about cooked me with 'em. He and the strikes coming just as we were beginning to whip hell out of the Nazis... No unions for me, if that's the kind of stuff their Communist leaders are going to pull. And, now they say I can't have my old doctor back. You better put me on your waiting list... but don't make me wait long, for I think I'll need some first class doctoring pretty soon. Looks like me and some of the boys who have been on the battle front have got another fight to win. Some of these dumb-bunnies running the political machine here are going to get the saw-dust knocked out of their heads. (Out of breath, he pauses. The doctor tries to get in a word. The nurse is near fainting because of this outburst against the government. Johnny starts in again)—Nope, Doc ... we didn't fight for this sort of thing—and we'll fight against it, now.

(Johnny rushes out with a wave for a good-bye.)

(The nurse slumps to the floor. The Citizens stare blankly. The doctor straightens out to his full height.)

Doctor M—And, I'll join that fight. Let me at McGillicuddy!

(He follows Johnny as the curtain falls.)

Reprints may be obtained from the *News-Journal*, Raeford, N. C., at 10c a copy, or 12 copies for 50c.

"Oint the Joints"

The following prescription, written December 19, 1822, by one of the pioneer physicians of Watauga County, was given to Miss Florence Dudley by Mrs. Colonel Story of Lenoir:

"This December the 19the, 1822 to Cure the Rheumatic pains take one quart Strong apple vinegar and one pound of hand tobacco boil them together and bind the leaves to the joints where the pains is with a woolen cloth then take one pound of hogs laird and a double handful of earth worms too spoon fulls of ginger one of black pepper—then simper them together over a slow fire till the worms becomes to a Cracklin then throw them out then oint the joints as hot as you can bear it and Rub it Down with a woolen cloth as hard as you can bear then bind a woolen Cloth to the place Night and morning and in four or five Days it will become Sound and well."

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OCTOBER, 1943

THE PROOF OF A PUDDING

The practice of medicine under government control began in Russia. The system was next adopted by Germany, then by a number of other European countries. Under Lloyd-George's administration the panel system was introduced in England.

On Thursday, September 16, Dr. Roscoe McMillan addressed the Raeford Kiwanis Club on the subject of the Wagner Bill. His address was followed by a general round-table discussion, after which the club voted unanimously to send a letter to each senator and representative from North Carolina, asking not only that he vote against the bill, but that he use his influence to have it killed.

During the discussion, the question was asked, "What are the advantages claimed for state medicine?" When someone gave as an advantage claimed prompter service on the part of the doctor, a member of the club who came from Russia a few years ago replied that under the system of state medicine in that country, it was usually a day and frequently two days before a call was answered. It was not unusual, he said, for the doctor to find the patient either dead or back at work when he finally arrived.

Another member of the club came to this country from England after he reached maturity. He told the club that his old family doctor said that the only satisfaction he derived from practicing under the panel system was the privilege of licking Lloyd-George's portrait on the stamps which he had to affix to his report every month.

In view of the extravagant claims made by the social reformers for their pet scheme, political medicine, these first-hand views are pertinent. "The proof of a pudding is in the eating."

* * * *

A STRAW IN THE WIND*

Having Uncle Sam pay all the bills for medical education appears to have certain definite disadvantages, as evidenced by the following news item from the News and Courier of August 17, 1943:

Medical College Navy Students Get Warning

Navy regulations against participation in political activities were invoked yesterday to forbid further protest by navy students of the Medical College of the State of South Carolina against the passage of the Wagner-Murray-Dingell socialized medicine bill now pending in congress.

A notice on the bulletin board in the lobby of the college read as follows: "All navy V-12 students by regulations are not allowed to participate in any form of political activity or join in any movement concerning government policy. Orders of Captain Needham, commanding officer."

Captain R. C. Needham, U.S.N., retired, is the commanding officer of the naval units at the Medical College and at the University of South Carolina.

It was understood last night that the students felt upset about the matter, although no comment for the press was forthcoming from them. At a meeting held Thursday night at the call of the class presidents, they had unanimously backed up the position of the Medical Society of South Carolina, a local organization, in protesting against passage of the bill, which they termed "totalitarian", and had made plans to enlist support of students of the sixty-odd accredited medical colleges in the nation to fight the bill.

Students who are in the army are not affected by the navy order, but it is expected that similar regulations will be enforced with regard to them.

Those physicians who look forward to being on the governmental payroll might well consider what it could mean in the curtailment of one's privileges of free speech.

*Editorial, *The Journal of the South Carolina Medical Association*, 39:235 (September) 1943.

THAT 1943 INCOME TAX

The Honorable Robert Doughton has been quoted as saying that a simplified income tax return form is needed and will probably be devised when the next tax bill is prepared. To the first part of this statement virtually all who sweated through the intricacies of the so-called simplified form for estimating one's 1943 tax will respond with a hearty amen! The numerous comments on the subject bear eloquent testimony to the desirability of having someone translate into intelligible English the meaning of the present form.

Even though the tremendous inroads made by the government upon one's earnings tend to lessen the incentive to honest toil, those of us who stay by the stuff at home realize that ours is a minor sacrifice compared with the contribution made by those in the armed forces. We are quite willing for the men in uniform to have everything needed to end the world conflict as soon as possible, and would not begrudge them the last penny that can be spared from necessary living expenses. Many of us would pay our income taxes with better grace, and would willingly toil through the verbal jungle of the "simplified" form if we knew that these taxes would be used for actual and necessary defense expenses. It does not increase the patriotic fervor with which we reach for our checkbooks, however, to read that Secretary Ickes—who boasts of being a bureaucrat — waved his bureaucratic wand and created a new Board on Geographical Names, with a director who is paid $8,000 a year, an assistant at $5,000, and 110 clerical helpers[1]. Twenty-five or thirty other helpers are being sought to complete this organization. According to its director, the Board is prepared to give streamlined service in the matter of pronunciation.

While the importance of pronunciation is recognized by all, Ickes' new brain-child could hardly be classed as essential to the war effort. It is reported that not one of five congressmen interviewed knew anything about the organization. Certainly it does not increase one's confidence in our so-called democratic government to know that our money can be spent recklessly at the whim of any bureaucrat.

1. Washington Wonderland, Reader's Digest 43:257:65 (Sept.) 1943.

DR. PARRAN ON THE WAGNER-MURRAY BILL

Since the Wagner-Murray-Dingell bill proposes to make the Surgeon General of the United States Public Health Service supreme dictator of medicine in the United States, it is important to know how Dr. Parran himself feels about the bill. The following letter, published in the September number of the *Journal of the Arkansas Medical Society*, speaks for itself:

July 19, 1943

Doctor R. B. Robins,
111 Van Buren Street,
Camden, Arkansas.

Dear Doctor Robins:

I am in receipt of your letter of July 10 requesting my comment on Senate bill 1161, and asking whether I favor it or not.

There are a number of considerations which would prevent me from accepting this bill as it stands at present. There is, for example, the question as to whether a compulsory health (or sickness) insurance scheme is the best method for improving the health of the people. I believe other plans should be explored and the advantages and disadvantages of the several methods freely discussed.

I feel also that everything possible should be done to elicit constructive suggestions from outstanding leaders in the medical profession, and that the physicians now serving in the armed forces should have an opportunity to express themselves regarding plans which would greatly affect their professional careers.

There are a number of other questions which I feel should receive most careful consideration before specific action is taken, but the above may be sufficient for any purpose you have in mind.

Sincerely yours,

Signed: THOMAS PARRAN,
Surgeon General,
U. S. Public Health Service.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

A 44 year old merchant was admitted to the private medical service of this hospital on March 30, 1943, complaining of intermittent nausea and vomiting, palpitation and pain in the chest. He had known that he had high blood pressure for the past ten years. During the year before admission his blood pressure had been found to be as high as 240 systolic, 140 diastolic. For several years he had had mild exertional dyspnea and some mild, vaguely described chest pain, which was relieved by rest and nitroglycerine. However, he had been able to carry on a gainful occupation until about six weeks before admission, when he awoke early in the morning with nausea and a severe "pressing feeling" in the substernal region. He vomited several times. The pain in his chest increased in severity and radiated down into both arms. The pain persisted and after two or three hours he was seen by his private physician, who noted a fall in blood pressure. The pain was finally relieved by an injection of morphine. The patient remained in bed for about two weeks, during which time he complained intermittently of nausea. The blood pressure remained low. After two weeks in bed he began to be up and about and attempted to return to work. However, he continued to have intermittent periods of nausea and vomiting without pain in the chest. At times he was quite dyspneic and orthopneic. Three weeks before admission he again woke at night with an attack of severe nausea and vomiting and again a sensation of pressure in the substernal region, without radiation. The pain lasted for a matter of hours. He was seen by his private physician and later admitted to a hospital, where he remained until he was brought here. At that hospital his blood pressure remained low. He had no more chest pain but continued to have intermittent periods of nausea and vomiting and a persistent tachycardia with frequent bouts of palpitation. He was given digitalis and aminophyllin without improvement.

Family History: One brother died of high blood pressure; another brother is living with high blood pressure.

Physical examination revealed a well developed and well nourished man who appeared to be acutely and chronically ill. He was dyspneic and moderately orthopneic. There was cyanosis of the lips and fingernail beds. There was marked narrowing of the retinal arterioles with arteriovenous nicking and "early bilateral papilledema." No hemorrhages or exudate were seen. The cervical veins were moderately distended. Dullness to percussion and absent tactile fremitus and breath sounds were noted at the left lung base, and moist crackling rales at both lung bases. A point of maximum impulse of the heart was neither seen nor felt, but there was a diffuse pulsation over the entire precordium. The left border of cardiac dullness was in the anterior axillary line in the fifth interspace, and supracardiac dullness extended 2 cm. to the right of the midsternal line. Heart sounds were loud and there was a presystolic gallop rhythm. No murmurs were heard. The blood pressure was 150 systolic, 134 diastolic. The abdomen was distended. There was shifting dullness in the flanks and palpable fluid wave. The liver was felt 2 cm. below the costal margin. There was no edema of the extremities.

Laboratory findings: A urinalysis showed the specific gravity to be 1.029. There was a 1 plus reaction for albumin, and no sugar. Occasional white blood cells and an occasional granular and hyalin cast were seen in the urinary sediment. Examination of the blood showed 5,900,000 red cells, with a hemoglobin of 17.5 Gm., and 7750 white cells, with 77 per cent polymorphonuclears, 6 per cent large lymphocytes, 15 per cent small lymphocytes, 2 per cent monocytes. The nonprotein nitrogen was 30 mg. per 100 cc. The blood sugar was 97 mg. per 100 cc. The total serum protein was 5.4 Gm. (albumin 3.5 Gm., globulin 1.9 Gm., albumin-globulin ratio 1.8). Cholesterol was 273 mg. per 100 cc. of blood. The Kahn test was not reported. The basal metabolic rate was plus 27.

Fluoroscopic examination of the chest showed marked cardiac enlargement without characteristic configuration. The amplitude of the cardiac pulsations was diminished. A gastro-intestinal series was negative. The electrocardiogram showed depression of ST_1 and ST_4, elevation of ST_2 and ST_3, diphasic T_1, inverted and cove shaped T_2 and T_3, upright T_4, and a deep Q_3. A second record showed little change. The arm to tongue cir-

culation time was 45 seconds. The vital capacity was 2250 cc.

Hospital Course: During the entire course in the hospital the patient had almost constant nausea and vomiting which did not respond to treatment. For intermittent periods he became mentally confused and irrational. After about a week in the hospital he began to have sacral edema; in about three days he had marked edema of the sacrum, back and lower extremities, but there was very little dyspnea. On his nineteenth hospital day an abdominal paracentesis was done and 100 cc. of thick yellow fluid with a specific gravity of 1.014 was obtained. About this time definite icterus of the sclerae was noted. He did not respond to diuretics. On the twenty-third hospital day he began to cough a considerable amount of bright red blood. At this time there were diminished breath sounds over the entire right lung, with many crackling moist rales but without change in the percussion note. No friction rub was heard. The following day there was dullness at the right lung base and the patient complained of pain in this region. An x-ray of the chest at this time showed consolidation of the right lower lung field. His condition thereafter grew steadily worse, and there was considerable dyspnea, mental confusion, progressive edema, and ascites. The nonprotein nitrogen rose to 54 mg. and the icteric index to 25. During the entire hospital course the blood pressure remained at a level of 145 systolic, 130 diastolic. The pulse pressure was always low. There was a paradoxical pulse of 6 mm. Terminally the blood pressure was recorded at 110 systolic, 95 diastolic. After about two weeks, a soft, blowing systolic murmur appeared at the apex. There was a persistent tachycardia throughout the entire hospital stay (pulse about 120). This was well out of proportion to the temperature, which was always normal except during the period when the patient spat up blood. He was given Lugol's solution without improvement.

On the twenty-eighth hospital day his skin became cold, clammy and cyanotic. Respirations were rapid and labored and many coarse, wet rales were heard over both lungs. The blood pressure could not be measured. A phlebotomy was attempted but was unsuccessful. He became comatose and died a few hours later.

Discussion

DR. TINSLEY R. HARRISON: The outstanding features in this case were progressive heart failure, intractable vomiting, and mild jaundice. Icterus in patients with cardiac disease is seen in the most severe form either when there is long standing and very marked congestion of the liver, such as occurs in organic disease of the tricuspid valve, or following pulmonary infarction. In this patient we have a story of blood spitting and physical signs compatible with infarction. I therefore think that we shall be safe in ascribing the jaundice to pulmonary infarction.

As regards the vomiting the problem is not so simple. This was the patient's most severe symptom, but neither clinical nor x-ray studies revealed any cause for this in the gastro-intestinal tract. We therefore have to ask ourselves whether the cardiac condition could be responsible for vomiting of this type. The most common cause of vomiting in patients with heart failure is the administration of drugs such as morphine, digitalis, xanthine diuretics, or ammonium chloride. We are told that the possibility of such a cause for the vomiting was excluded by the withdrawal of all medication for a considerable period without any relief from the vomiting. Heart failure itself frequently causes vomiting as the result of congestion of the abdominal viscera, and in such cases the vomiting usually responds rapidly to the standard treatment for congestive failure. Such was not the case in this patient. Another common cause of vomiting in patients with serious heart disease is uremia, as renal and cardiac failure so often occur simultaneously. However, there is no evidence of any significant degree of renal insufficiency in this patient. Occasionally one observes a patient with progressive severe myocardial disease who presents vomiting as an outstanding manifestation. The mechanism of such vomiting is probably comparable to that induced by digitalis: for it has been shown that vomiting induced by this drug is not, as was formerly thought, due to the action of the drug on one of the centers of the brain stem, but is a reflex from the heart. If the drug can induce reflex nausea and vomiting as a result of its action on the myocardium, there is no reason why a disease process acting on the myocardium may not have a similar effect. As a matter of fact, I

have seen several patients in the past with intractable vomiting which was proven at autopsy to be the result of progressive myocardial injury. Such a sequence of events is observed commonly in diphtheritic myocarditis and occasionally in rheumatic myocarditis. We are forced to conclude, I think, that in this patient the most likely explanation of the vomiting is extensive, severe and progressive disease in the myocardium.

When we try to determine the cause of the patient's cardiac disease, we run into a number of difficulties. On first thought this seems to be a rather obvious instance of coronary thrombosis because of the pre-existing marked hypertension and the sudden onset with pain in the chest. However, the progressive nature of the disorder is difficult to account for on the basis of one or two attacks of coronary thrombosis. Such patients do not ordinarily present for a period of many weeks progressive, intractable heart failure with very low pulse pressure and severe vomiting. The type of heart failure, as well as the vomiting, would point toward something in the heart which is progressive.

Certain features would go well with constrictive pericarditis, which commonly produces progressive heart failure and a very low pulse pressure. However, the pulse is usually paradoxical by a greater degree than in this patient. Furthermore, such patients do not ordinarily have marked cardiac enlargement and fairly loud sounds with readily visible pulsations. Typical findings in a person with constrictive pericarditis are a normal sized, quiet heart, plus severe right-sided failure.

Since there is no evidence of a valve lesion, and since we can probably exclude disease of the pericardium, we have to come back to the heart muscle. In many respects this patient presents the picture of severe myocarditis. However, evidences of syphilis, rheumatic fever, tuberculosis, trichinosis, sarcoidosis, and other specific causes of diffuse myocarditis are lacking. The picture is not unlike that seen with isolated or Fiedler's myocarditis, but this condition is unrelated to hypertension and would not account for the sudden onset of the symptoms with pain. Intractable and progressive heart failure may occasionally result from cardiac tumors, but we have in this patient no evidence of any primary malignant disease which could cause metastasis to the heart, and by x-ray no evidence of a marked deformity of the cardiac shadow usually seen with benign tumors which are large enough to cause heart failure.

We therefore come back to the paradox from which we started—namely, that the history suggests coronary occlusion, with possibly two attacks, while the course in the hospital suggests not an episodic disease such as coronary occlusion but a progressive disease. Is there any way in which these two opposing lines of evidence can be reconciled? There is, provided we are willing to make certain assumptions. This patient had long-standing hypertension, and it is therefore not unreasonable to believe that the small arteries in the heart may display considerable narrowing. As long as the blood pressure was high the myocardial nutrition was probably good in spite of such narrowed vessels. However, it is possible that when the decline in pressure set in as a result of the initial attack of coronary occlusion, the flow of blood through the narrow vessels became markedly impaired, and that as a result of this the patient developed diffuse myocardial ischemia with many scattered areas of degeneration. As the heart became still further injured, the blood pressure might drop more and this would lead to further myocardial ischemia and hence to further degeneration, the vicious cycle tending to perpetuate itself in this way. Such a series of events may seem a little far-fetched, but it is only by assuming this that I can account for the complete picture. I therefore believe that we are dealing with a patient who had originally obstruction of a large coronary vessel and who subsequently developed progressive ischemia in numerous scattered small foci in the heart as a result of impaired coronary circulation. One or more gross infarcts and very numerous small infarcts of varying age and in various stages should be found. In addition to these cardiac findings it seems probable that the patient had pulmonary infarction, and of course the usual chronic passive congestion found in people with long-standing heart failure.

Anatomical Discussion

DR. ROBERT P. MOREHEAD: The heart weighed 450 Gm., and in the anterior wall of the left ventricle, mid-way between the apex and the base, an area of infarction was

seen. This area of softening extended to involve the endocardium and was continuous with a mural thrombus which measured 3 cm. in diameter.

A thrombus was seen in the right coronary artery 2.5 cm. from the ostium. Microscopic study of the heart revealed marked arteriolosclerosis, with thrombosis and diffuse myocardial degeneration. As a rule the arterioles of the heart do not participate to any degree in generalized arteriolar disease. This case is unique in this respect.

Thrombi were demonstrated in many of the smaller branches of the pulmonary artery, and the entire lower lobe and lower portion of the middle lobe of the right lung were infarcted. An infarct 3 cm. in length was found in the lower lobe of the left lung. The jaundice is readily explained by this finding.

The gastro-intestinal tract showed nothing remarkable and vomiting must have been due to drugs or to venous congestion.

Anatomical Diagnosis

1. Cardiac hypertrophy.
2. Generalized coronary arteriosclerosis.
3. Thrombosis of the right coronary artery.
4. Myocardial infarct, left ventricle, anterior surface.
5. Mural thrombus, left ventricle.
6. Visceral congestion.
7. Edema, generalized, with hydrothorax, hydropericardium, hydroperitoneum.
8. Pulmonary thromboses, bilateral.
9. Pulmonary infarct, bilateral.
10. Ulcers in the esophagus, distal third.
11. Operative scar, well healed.

Physicians As Artists

"From time immemorial, medicine and art have been closely associated. The same skill that makes the surgeon's fingers deft with scalpel and ligature is at work in the beautiful examples of sculpture and carving shown in this book. The eye that so quickly and accurately evaluates the gradations in color and texture between normal and pathologic tissue coordinates the hand that wields the painter's brush. The man who chooses medicine as his life's work is largely motivated by a love for his fellow man, else he would select a vocation offering greater monetary reward. From the beginning, he is trained to exercise his powers of observations, and in time develops imagination, sympathy, understanding, philosophy and reverence, all of which are the very essence of art. Moreover, he deals with that most exquisite form of divine art and beauty, the human body."

—quoted from "Parergon," published by Mead Johnson & Company, Evansville, Ind. Free copy available to physicians on request.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Contracts: The mere request of a stranger to a physician to render needed service to another, to whom he owes no duty, is insufficient, in the absence of an express promise to pay, to render him liable for the value of the service the physician renders.

This is an account of an action instituted by a physician and surgeon to recover of the defendant, a sheriff of one of our eastern counties, a fee for professional services rendered to, and hospital expenses incurred in behalf of a prisoner at the request of the sheriff, who had the prisoner in his custody. The prisoner was suffering from gunshot wounds inflicted by a deputy sheriff when he attempted to arrest him on a charge of robbery and larceny. At the time of the arrest the prisoner resisted, and had to be shot in order to repel the force which he used in resisting.

The defendant denied liability, and alleged that the Board of County Commissioners was liable for the professional services and hospital expenses. Upon the defendant's motion, the County Commissioners were made a party defendant to the suit. The Board denied liability on the ground that it had not authorized the sheriff to take the wounded prisoner to the plaintiff for treatment, and the Board stated further that it had not requested any services from the doctor for the injured man.

In Superior Court there seemed to be no controversy except as to the liability for the expenses incident to professional services and hospitalization.

The sheriff readily admitted that he had requested treatment for the prisoner, and that this was done before he had an opportunity to secure authority from the Board of County Commissioners. In addition, there was some suggestion that the sheriff had personally promised to pay for the services rendered, but this fact was not definitely established.

At the close of all evidence, on motion of each defendant, there was a judgment of nonsuit, dismissing the action. From the judgment rendered in Superior Court the plaintiff appealed to the Supreme Court.

When this case came on to be considered by the Appellate Court, it was held specifically in this particular case that a sheriff of a county is not responsible for payment for the services of a physician whom he has requested to attend his prisoner, in the absence of a special promise to pay. The Court in substantiation of its ruling cited the following statement, which is of particular interest to physicians, and is found in the **Encyclopedia of Law**, volume 30, page 597. "The rule that where a person requests the performance of a service, and the request is complied with, and the service performed, there is an implied promise to pay for the service, does not apply where a person requests a physician to perform services for a patient, unless the relation of that person to the patient is such as raises a legal obligation on his part to call in a physician and pay for the services, or the circumstances are such as to show an intention on his part to pay for the services, it being so understood by him and the physician." But for the exception to the general rule, stated the Court, one might hesitate to call a physician to aid one in need of urgent medical service, fearing that he might be held responsible for the expenses incident thereto. This exception was not felt to be unjust to the physician, who may

require an express contract for payment of services before responding.

There is very little likelihood that a physician would refuse to give emergency treatment, regardless of the fee; but if the treatment is likely to necessitate a long period of hospitalization it would be essential for the physician to require a definite contract before assuming the responsibility. (Decision rendered Spring Term, 1926. North Carolina Supreme Court, Vol. 191, page 487.)

CORRESPONDENCE

The following letter from one of our most active practitioners is so characteristic of perhaps the majority of the members of the medical profession that it and the reply are both published in full.

Dr. Wingate Johnson
Winston-Salem, N. C.
Dear Doctor,

I notice that your name is listed on the board of Trustees of the National Physicians Committee and I am writing to you for some information in regard to it.

Is this Committee a worthy one and is it doing a good job?

Shall appreciate hearing from you.

* * * *

Dear Doctor—:

Naturally I would not have agreed to serve as a trustee of the National Physicians' Committee if I did not believe that it was a worthy organization, and that it was doing a good job. I am not egotistic enough to think that my name guarantees either its worthiness or its effectiveness, but I do hope that I can convince you of its merit.

As you doubtless know, there has been, over a period of at least ten years, a well planned effort on the part of the present administration to bring about federal control of the practice of medicine. Naturally part of this program has been an effort to discredit the private practitioners of medicine and the American Medical Association, which has approximately 80 per cent of the active practitioners of the country in its membership. The question has been asked over and over again, "Why doesn't the A.M.A. do something to counteract the propaganda against the medical profession? Why doesn't the A.M.A. fight back?"

The legal counsel of the American Medical Association advised strongly against its taking an active part in the fight—chiefly because such a course might render it liable to taxation as a corporation. Other considerations also entered into the decision.

The National Physicians' Committee was organized in November, 1939, in answer to this often repeated demand of private doctors that something be done. Its chairman, Dr. Edward H. Cary, is a past president of the American Medical Association. All trustees and members have been selected carefully for their known interest in preserving the American plan of medicine.

The fact that state medicine is not yet a reality, after more than ten years of relentless effort to force it upon the country, is evidence that the National Physicians' Committee is doing a good job. With the funds it has had—meager by contrast with the millions of tax money the government has used for propaganda—it has given the public an amazing amount of information about American medicine, to counteract the misinformation broadcast by the advocates of political medicine. The National Physicians' Committee's program has included, among other things, a broadside advertisement in the *Saturday Evening Post;* a number of radio programs; and a steady stream of suggested editorials for various newspapers, especially those having a wide rural and small town circulation. Perhaps you overlooked the letters sent you and every other active practitioner in America, before the 1942 congressional elections, asking your support in sounding out your candidates for Congress. It is hardly too much to say that as a result of that campaign, Congress now has a tremendous majority of members pledged to oppose further encroachments by the government upon medical practice.

Surely, however, you have not overlooked the booklet, "Abolishing Private Medical Practice", which was prepared by the National Physicians' Committee and sent to every active practitioner. As a result of that, nation-wide interest is being aroused in the Wagner-Murray Bill — S. 1161 —, and opposition to it increases in direct proportion to the spread of information about it.

The National Physicians' Committee was endorsed by unanimous vote of our State Society last May. A year ago it was approved by the House of Delegates of the American Medical Association. This should answer your question as to the worthiness of the Committee. More than these endorsements, however, the Committee needs the support of men like yourself. One of its hardest tasks has been to overcome the inertia of

the rank and file of the profession. This inertia is not caused, I am sure, by indifference to the future of American medicine. Rather it is due to the complete absorption of such men as you in the exacting demands of each day's work. With our ranks depleted by the war, those of us who are staying by the stuff at home need every possible moment to meet the demands upon our time. Since Pearl Harbor I have worked harder than at any time since the influenza epidemic of 1918-1919, and I know that virtually every other doctor in civilian practice can say the same thing. In our devotion to the demands of the present, however, let us not fail to keep faith with our colleagues in the armed forces. Let us see that they can return to practice medicine as individuals, rather than as hired servants of the State, and thus maintain the highest health standard in the world.

With very best wishes,

Sincerely yours,

WINGATE M. JOHNSON

BULLETIN BOARD

News Notes From the State Board of Health

More than 4,100 expectant mothers who are the wives of service men have been provided with medical and hospital care up to September 3, by the North Carolina State Board of Health, it was announced by Dr. George M. Cooper, director of the board's maternal and child health services.

Approximately 150 babies of service men also have been treated in approved hospitals, according to Doctor Cooper. Only babies under a year old are eligible.

"North Carolina was the first state in the Union to have its plan for these services to the families of men under arms approved by the United States Children's Bureau, from which the funds are secured," Doctor Cooper said.

* * * *

Over the radio and through the press it has been announced recently that civilian America remained healthy during the first year of this country's participation as a belligerent in World War No. 2.

The figures released were highly gratifying, the national death rate for 1942 having been only 10.3 per thousand, while the birth rate was 20.7. This was the first time in decades, according to these news releases, that the **national birth** rate had doubled the **national death** rate. This despite the shortage of doctors and nurses and overcrowded housing conditions in our large industrial areas, to say nothing of the shortage of many essentials, including even some of our most important foodstuffs, hitherto considered vitally necessary to a balanced diet.

Now let us take a look at the health picture in our own state and see how it compares with the **national** picture. The comparison is extremely favorable, and the results highly gratifying.

While the **national** death rate in 1942 was 10.3, the North Carolina death rate was only 8.1, the lowest in our history, despite our recognized handicaps, while our birth rate was 24.6, or 3.9 **higher** than the **national** birth rate of 20.7. Throughout the **nation as a whole**, there were **twice** as many births as there were deaths last year, while the ratio in **North Carolina** was more than **three to one.** We had, during the year, 29,613 deaths, while the total number of births reported was 90,056.

News Notes From the North Carolina Tuberculosis Association

County tuberculosis associations were organized during the month of August in Halifax, New Hanover and Richmond Counties. Mrs. R. C. Josey, Jr., Scotland Neck, was elected president in Halifax County, Mr. Emmett Bellamy, Wilmington attorney, was selected as the president in New Hanover and Mrs. John W. Porter from Rockingham became the first president of the new association in Richmond County.

* * * *

Dr. T. F. Vestal, Director of Industrial Hygiene of the North Carolina State Board of Health, gives the following pertinent facts in regard to case finding in industry in North Carolina.

"The North Carolina State Board of Health, with the assistance of the United States Public Health Service, the state and local tuberculosis organizations and the local health departments, has been able to carry on Tuberculosis Case-Finding programs in some of the industries in seven counties. These counties include, Durham, Pasquotank, Orange, Guilford, Forsyth, Mecklenburg, and Alamance. The industries examined were varied in both size and type. Some were small; some were large. The types include cotton textile, construction, hosiery knitting, munitions, shipbuilding, plane manufacture, and Coast Guard. The employees of one university were also examined. Both the white and colored races were well represented. Chest x-rays were made for 40,000 employees. Six hundred or one and one-half per cent showed evidence of pulmonary tuberculosis. About one-half of these appeared to be active from the x-ray standpoint. Of this 600 cases found, sixty per cent were minimal, thirty-five per cent were moderately advanced and five per cent were far advanced—some with cavitation."

News Notes From the University of North Carolina School of Medicine

Dr. A. T. Miller, Jr., of the Department of Physiology, has recently been awarded grants by both the Sigma Xi Society and the American Medical Association to continue certain projects on a low pressure chamber.

* * * *

Dr. Wm. deB. MacNider attended a meeting of the Food and Nutrition Board of the National Research Council in Washington on August 31, and later, on September 2, a meeting of the Committee on the Nutritional Aspects of Ageing, in Chicago.

* * * *

Dr. John H. Ferguson, of the Department of Pharmacology of the School of Medicine, University of Michigan, has been appointed Professor and Head of the Department of Physiology of the University of North Carolina School of Medicine. Dr. Ferguson is well known for his research on the mechanism of blood clotting.

Dr. A. T. Miller, Jr., Assistant Professor of Physiology, has been appointed Assistant Dean of the School of Medicine of the University of North Carolina.

* * * *

The medical students of the University of North Carolina School of Medicine who will complete their first two years of Medicine in November, 1943, have been transferred to the following schools to complete their third and fourth years:

Edward Hatcher Alderman, Four Oaks, N. C. — Medical College of Virgina.
Joseph Woodrow Baggett, Lillington, N. C.—University of Maryland.
Claude Fletcher Bailey, Elizabeth City, N. C.—University of Maryland.
Hilda Hart Bailey, Woodleaf, N. C.—University of Pennsylvania.
Truett V. Bennett, Asheville, N. C.— Washington University .
Joseph Reece Blair, Troy, N. C.—Jefferson Medical College.
Robert Lee Bobbitt, Rocky Mount, N. C.— University of Pennsylvania.
William T. Brown, Hamlet, N. C.—Northwestern University.
George F. Cameron, Beaumont, Texas — Jefferson Medical College.
Douglas H. Clark, Clarkton, N. C.—University of Pennsylvania.
William C. Croom, Jacksonville, Florida—Washington University.
Robert G. Currin, Oxford, N. C.—University of South Carolina Medical College.
Joseph Vance Davis, Waynesville, N. C.—University of Pennsylvania.
Joseph P. Demeri, Brooklyn, New York—New York Medical College.
Samuel N. Dulin, Elizabeth City, N. C. — George Washington University.
Robert W. Elwell, Camden, New Jersey—Jefferson Medical College.
William L. Foster, Asheville, N. C.—University of Maryland.
Rose C. Harrelson, Tabor City, N. C. — Jefferson Medical College.
Lloyd B. Harrison, Washington, D. C.—University of Virginia.
Joseph Baylor Henninger, Chapel Hill, N. C.—Northwestern University.
George B. Johnston, Kelford, N. C.—Jefferson Medical College.
Ethel G. Lawner, Brooklyn, New York—New York Medical College.
Filas J. Little, Concord, N. C.—Medical College of South Carolina.
William H. Meroney, Greensboro, N. C.—New York University.
Harold H. Newman, Jr., Salisbury, N. C.—Johns Hopkins University.
Henry C. Newsome, Jr., Winston-Salem, N. C. — University of Virginia.
Sumner Malone Parham, Henderson, N. C.—University of Maryland.
Herbert W. Park, Jr., Greensboro, N. C.—Duke University.
Edwin B. Parkinson, Due West, S. C. — Jefferson Medical College.
Claude T. Peoples, Mocksville, N. C.—Jefferson Medical College.
Richard H. Phillips, Chapel Hill, N. C.—New York University.
Leon W. Robertson, Wake Forest, N. C.—Bowman Gray School of Medicine.
William A. Rodgers, Lakeland, Florida—University of Maryland.
William L. Ross, Salisbury, N. C.—Jefferson Medical College.
James H. Shell, Greenville, S. C.—University of Maryland.
Frank P. Smith, Easley, S. C.—Harvard.
Paul B. Toms, Salisbury, N. C.—University of Maryland.
James Taylor Vernon, Morganton, N. C.—Washington University.
William D. Watkins, Morganton, N. C.—Washington University.
Homer C. Wick, Washington, D. C.—Johns Hopkins University.
Cecil W. Wooten, Kinston, N. C.—Harvard.

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting in Winston-Salem on September 14. Dr. C. C. Coleman, of Richmond, was guest speaker. His subject was "Low Back Pain and Sciatica".

Mecklenburg County Medical Society

At the regular meeting of the Mecklenburg County Medical Society on September 7, 1943, the following resolution was unanimously adopted:

"Resolved: That the Mecklenburg County Medical Society in regular meeting assembled

"(A) Request that the President of the North Carolina Medical Society together with two of its members, preferably the President Elect and Secretary, ask the senior Senator of North Carolina to arrange a meeting of the members of Congress from North Carolina, such meeting to be held in Washington, D. C., to discuss the Wagner-Murray Bill (Bill S. 1161).

"(B) That expense money, not to exceed $150, be provided for this mission in a manner which seems wisest to the officers of the Mecklenburg County Medical Society."

Letters regarding the Wagner-Murray Bill were sent to Senators Bailey and Reynolds by the Cabinet of the Society.

Regional Meeting of College of Physicians

The program for the meeting of the North Carolina College of Physicians, which is to be held in Winston-Salem on Friday, October 29, is as follows:

Afternoon Session—Bowman Gray School of Medicine—2 P.M.

The Typhus Fever Problem in North Carolina—T. W. Baker, M.D. and James M. Alexander, M.D., Charlotte
Coronary Occlusion—William B. Dewar, M.D., Raleigh
Changing Phases in the Treatment of Tuberculosis —Paul H. Ringer, M.D., Asheville
Clinico-Pathological Conference—Arthur Grollman, M.D. and Robert P. Morehead, M.D., Bowman Gray School of Medicine

Evening Session—Robert E. Lee Hotel Dinner—7 P. M.

"As They Were"—Colored Pictures of Australia and the East in 1938—W. B. Castle, M.D., Boston, Guest Speaker
Remarks by Charles H. Cocke, M.D., Asheville, First Vice President of the American College of Physicians, and Paul F. Whitaker, M.D., Governor for North Carolina

South Carolina Refresher Course

The program for the refresher course to be given by the Medical College of the State of South Carolina, Charleston, has been completed, and is as follows:

ALUMNI ASSOCIATION REFRESHER COURSE

Wednesday, November 3, 1943

Baruch Memorial Auditorium

9:30 A.M.—The Uses and Abuses of the Sulfonamides—Dr. H. L. Flippin. Philadelphia, Pa.
10:15 A.M.—Differential Diagnosis of the Anginal Syndrome—Dr. C. C. Wolfert, Philadelphia, Pa.
11:00 A.M.—The Essentials of Pneumoconiosis—Dr. L. U. Gardner, Saranac, N. Y.
11:45 A.M.—Traumatic Shock—Dr. Alfred Blalock, Baltimore, Md.
12:30 to 1:15 P.M.—Clinical Presentations—By visiting speakers and faculty.
1:30 P.M.—Buffet Luncheon in Medical College Library
3:00 to 4:00 P. M.—Medical Round Table
The Sulfonamides—Dr. Flippin
Treatment of Heart Diseases—Dr. Wolfert
Pulmonary Diseases—Dr. Gardner
—Baruch Auditorium
4:00 to 5:00 P.M.—Surgical Round Table—Dr. Blalock—Baruch Auditorium
5:00 to 6:00 P.M.—Pathological Conference—Dr. K. M. Lynch—Pathology Laboratory

Thursday, November 4, 1943

9:30 A.M.—Deficiency Diseases—Dr. V. P. Sydenstricker, Augusta, Ga.
10:15 A.M. — Physiological Considerations in the Treatment of Nephritis—Dr. G. W. Thorn, Boston, Mass.
11:00 A.M.—Calcific Aortic Stenosis—Dr. J. T. King, Washington, D. C.
11:45 A.M.—Diagnosis and Treatment of the Hemorrhagic Diseases—Dr. R. R. Kracke, Atlanta, Ga.
12:30 to 1:15 P.M.—Clinical Presentations—By visiting speakers and faculty.
3:00 to 4:00 P. M.—Round Table—Thyroid Disturbances or other medical subjects—Drs. Thorn and King—Baruch Auditorium
4:00 to 5:00 P.M.—Nutritional Diseases, Hemorrhagic Diseases—Drs. Sydenstricker and Kracke —Baruch Auditorium
5:00 to 6:00 P.M.—Pathological Conference—Dr. K. M. Lynch—Pathology Laboratory
8:00 P.M.—Founder's Day Banquet—Speaker—Dr. Henry Meleney, New York
Subject—Tropical Medicine, Present and Future —Francis Marion Hotel

Hotel accommodations are scare, but every one who desires to attend the course will be housed. Requests for accommodations should be sent as soon as possible to Dr. W. H. Kelley or Dr. J. I. Waring, Charleston.

Association of Military Surgeons

Rear Admiral Ross T. McIntire, Surgeon General of the United States Navy, and personal physician to President Roosevelt, will serve as honorary chairman for the 51st annual convention of the Association of Military Surgeons of the United States to be held in Philadelphia October 21, 22 and 23.

A symposium on war medicine, which will chart the progress and the recent advances made in the care and hospitalization of men in the armed forces will highlight the three-day meeting in the Bellevue Stratford Hotel here.

Officials of the convention expect an attendance of more than 2000 doctors now attached to the fighting forces, many of whom will return from the battle fronts and from every section of the country where men are stationed, to hear the lectures and to take part in the panels and discussions that will mark the conference.

The Part of the Medical Profession in the War Manpower Commission Stabilization Plan

Since the advent of the War Manpower Commission Stabilization Plan on May 15, 1943, in Region IV, which includes North Carolina, Virginia, West Virginia, Maryland, and the District of Columbia, there has developed a definite need for a clear understanding of the plan on the part of medical practitioners.

Obviously there will be, and already have been, a number of cases in which employees who wish to change their employment resort to securing statements from a doctor in support of their request for a Statement of Availability from the United States Employment Service.

Occasionally there is a case in which, for medical reasons, the worker definitely needs to make a change; and in cases of this nature we not only welcome the statements of physicians, but urge the doctor who is making the statement to be as specific as possible with regard to the employee's physical condition and just what effect the work he is engaged in is having upon his or her health.

There have been received in various local Employment Offices statements signed by doctors reading, for example, as follows: "John Jones appeared before me today and stated that the work he is doing at present is injurious to his health and he is desirous of changing his employment on account of that." Or: "Bill Smith states that night work does not agree with him, that it tends to tear up his nervous system, and that he cannot sleep in the day time."

Such statements as these are not worth the paper upon which they are written so far as the War Manpower Commission is concerned, and do not reflect the condition existing in the person at all.

Where there actually exists a condition that is detrimental to an employee's health, the War Manpower Commission wishes to know about this; and if they are properly informed by the doctor's statement concerning the condition, then the Review Unit in the Local Offices can render a much more accurate decision than when they have a statement which carries very little meaning with it.

It is hoped that every member of the medical profession will read this article and follow the thought outlined. By assisting the War Manpower Commission in this way to stabilize employees you will be making a real contribution to the war effort.

The Stabilization Plan is not a freeze order, but a plan whereby an orderly flow of labor from employer to employer can be effected. The principal aim of the plan is to get every person who has a skill employed in work using that skill at its highest peak. If persons have more than one skill the purpose of the plan is to utilize the skill that will contribute most to the furtherance of the war effort and utilize it to the highest degree of efficiency.

The enormous turnover in labor can be controlled to a great extent by the cooperation of the medical profession, and it is hoped that this splendid group of men will lend their support toward reaching the desired goal.

Medical and Surgical Relief Committee of America

To help the Medical and Surgical Relief Committee continue its vital work of providing emergency medical kits to Coast Guard patrol boats, Navy subchasers, mine-sweepers and destroyer-escorts, Dr. Frederic M. Hanes, state chairman of the Committee, has issued an urgent appeal to surgeons, physicians and medical supply houses for drugs and spare discarded instruments.

Among the items needed to equip the emergency kits are artery clamps, splinter forceps, scalpels, probes, grooved directors, sulfadiazine tablets, sulfadiazine ointment 5%, sulfathiazole tablets, and sterile shaker envelopes of crystalline sulfanilamide. Other medicines and surgical instruments are, of course, equally welcome.

All salvaged instruments sent in to Committee Headquarters in New York are rigidly inspected, classified and reconditioned if necessary, before they are packed into the casualty units. No open boxes or bottles of medicine are acceptable.

The sub-chaser or patrol-boat kit, especially designed by Committee doctors for the small subhunting, doctor-less craft, is a compact case carrying essential medications and an instrument roll. According to Dr. Hanes, it is prepared to give immediate treatment to casualties until the ship reaches a base hospital. Dr. Hanes pointed out that detailed instructions are included in each medical unit to insure effective use of the contents by nonmedical officers.

"Hundreds of appreciative letters in the Committee's files testify to the pressing need for such medical kits," declared Dr. Hanes. "They emphasize the urgency of the job the Committee is tackling—a job dedicated to shortening allied casualty lists. I hope every North Carolina doctor will contribute a salvaged instrument to the Medical and Surgical Relief Committee—the only war relief agency devoted solely to medical aid."

The Committee, celebrating its third birthday last month, was organized and is conducted by physicians and surgeons, to send medical and surgical supplies to the armed and civilian forces of America and her Allies. To date, over $562,000 of medicines, instruments, vitamins and other equipment have been donated by the Committee to military and maritime units of the United Nations, to needy hospitals, warzone welfare agencies and civilian defense posts throughout the free world.

More Penicillin For Army

Work has begun on a 5-story and basement reinforced concrete and brick factory and laboratory building, 182'-6" x 82'-6", for the Lederle Laboratories, Inc. at Pearl River, N. Y., according to plans prepared by the Chemical Construction Company. The Chemical Construction Company and the Lederle Laboratories are wholly owned subsidiaries of the American Cyanamid Company, one of the largest chemical and allied industry manufacturing concerns in America.

The general contract has been placed with the Turner Construction Company. The job has high priorities from the War Production Board and extreme speed is required in order to meet the army's needs for penicillin, the remarkable new drug which the armed forces need in large quantities.

The Board of Trustees of the University of Illinois have announced the acceptance of a grant of $25,000 a year for three years made by The Upjohn Company of Kalamazoo, Michigan, to be devoted to the academic study of the structural composition and possible synthesis of penicillin.

AUXILIARY

PROGRAM SUGGESTIONS FOR COUNTY AUXILIARY PROGRAM CHAIRMEN

Again, as in the early fall of 1942, it is my privilege to present, with added notes to aid in adapting it to our own County Auxiliaries, the well-planned program of the Auxiliary to the American Medical Association, recently received from the National Program Chairman, Mrs. Oscar W. Friske. All parts in italics were added to aid in our own state's special projects.

Health Education and Post War Planning

Mrs. Friske says that our program is the most vital weapon of our Auxiliary. Through it our members will receive authentic information on the problems concerning and confronting our husbands' profession. Let us concentrate our efforts on the study of these serious conditions—not as individuals, but as a group of twenty-eight thousand women who *are* The Woman's Auxiliary to the American Medical Association. Let us be sure that all materials used for study groups be authentic and that we cooperate closely with the program of the War Participation Committee, whose Chairman is Mrs. Rollo K. Packard, 6901 Paxton Avenue, Chicago, Illinois.

I. Health Education.

1. American Medical Association: A. History and purpose. B. Departments (Bureau of Health Education, particularly). C. National Physicians Committee, why organized and for what purpose. D. State and County Medical Societies.

2. Woman's Auxiliary to the American Medical Association: A. History and objects (See "Forward Auxiliary", by Mrs. Harold Wahlquist, pages 118-122 of March *Bulletin* of the Auxiliary to the American Medical Association, also, "Be Informed"). B. *Hygeia:* Why its distribution is one of our chief activities (See December, 1942, *Bulletin*, page 72).

3. *Auxiliary to Southern Medical Society: A. Story of Jane Todd Crawford (See* Kentucky Medical Journal, *Part II—1942 Quarterly). B. Doctors' Day (See* North Carolina Medical Journal, *March, 1943, pages 114, 115).*

4. *Auxiliary to the Medical Society of the*

*State of North Carolina: Objects and Projects.**

5. War Participation: All activities pertaining to service of Auxiliary members in war efforts are united under this committee. It has been suggested by the National Advisory Committee that one of our projects, this year, be assisting with the recruitment of nurses and the new Nurses Cadette Program.

We urge Auxiliary members to become familiar with: A. Committee on Procurement and Assignment. B. Effects of war on medical education. C. Social trends and new scientific discoveries pertaining to the practice of medicine. D. Moral and mental hygiene—juvenile delinquency.

II. Post-War Planning.

1. Organization of Study Clubs—Topics for discussion: *A.* United States public health within your state and county. *B.* Distribution of medical care in your state and county. *C.* What type of hospital service do your state and community offer? Should something be done to improve this service? *D.* Living conditions in the penal and charitable institutions in your state and community. What is their rehabilitation program? *E.* Social hygiene education. This should be particularly stressed in communities adjacent to military camps. *F.* Prenatal and postnatal care of mother and child. *G.* Rehabilitation of post-war veterans. *H.* Recommendations of the National Resources Planning Board: (1) Will these recommendations affect organized medicine? Follow closely the organization section of each issue of the *Journal of the American Medical Association* in order to know what effect these plans will have on the private practice of medicine. *I.* What effect will tropical diseases, such as malaria, which is likely to be seen with increasing frequency in the United States, have on the post-war period?

2. Facilities available to Auxiliaries for Health Education Program: *A.* Bureau of Health Education of the American Medical Association, Dr. W. W. Bauer, Director, 535 N. Dearborn Street, Chicago, Ill.: (1) Electrically transcribed radio health programs. (2) Health films. *B.* Speakers from your own state and county medical societies. *C.* Articles appearing in the *Journal of the American Medical Association* and journals of state medical societies *(to be found in Charlotte and other Medical Libraries). D.* Articles appearing in *Hygeia. E.* Biographies of pioneer doctors. *F.* Medical legislation—federal and state.

From this wealth of subjects and available material, it is hoped that each county auxiliary program chairman will plan nine program meetings to be held whenever advisable, at the time and place of medical society meetings to help conserve gas and tires.

Respectfully submitted,

Mrs. Joseph A. Elliott
State Program Chairman
2700 Sherwood Ave.,
Charlotte, N. C.

*Copy may be borrowed from State Program Chairman.

AUXILIARY MEMORANDUM

Hygeia—remember me? I am published by the American Medical Association, and I interpret scientific medical information to the lay public. I also help to support your bed fund for tubercular patients from your subscription. Do not overlook me this year or leave me out of your reading. I will not only keep you informed, but I will help your Auxiliary. Plan now to send in your subscription for me to Mrs. John C. Reece, 212 Cascade Ave., Winston-Salem, N. C.

BOOK REVIEWS

Geriatric Medicine Edited by Edward J. Stieglitz, M.S., M.D., F.A.C.P., Consultant in Gerontology, National Institute of Health; Visiting Physician, Medical Service, Baltimore City Hospitals; Attending Physician, Washington Home for Incurables, Washington, D. C. 887 pages, illustrated. Price, $10.00. Philadelphia: W. B. Saunders Company, 1943.

Within the past decade there has been a steady increase of interest in the problems of old age. Numerous books, both professional and popular, have been written on the subject. Most of these have been monographs. Stieglitz has done for the practice of geriatrics what Cecil did for the practice of medicine. In one large volume he has collected a series of articles dealing with some phase of "the diagnosis and management of disease in the aging and in the aged." Each article is written by an authority in his field. Together they constitute a veritable system of geriatrics.

While it is doubtful, for various reasons, that many men will actually limit their work to patients past sixty, it is of vast importance that family doctors and internists alike shall have a working knowledge of the recognition, treatment and—so far as possible—the prevention of the diseases prevalent among older patients. For the acquisition of such knowledge Stieglitz's volume can be recommended unreservedly.

Allergy. By Erich Urbach, M.D., Chief of Allergy Service, Jewish Hospital, Philadelphia; Associate in Dermatology, University of Pennsylvania School of Medicine; Member of Board of Regents, American College of Allergists; with the collaboration of Philip M. Gottlieb, M.D. 1100 pages, with 400 illustrations and 80 charts. Price, $12.00. New York: Grune & Stratton, Inc., 1943.

This is a most interesting book. Although long, it is full of facts that both the general medical man and the student of allergy should know. The author very frankly expresses his own opinion, but gives an excellent list of references covering the previous literature on the subject. This book is divided into three parts. Part one discusses the fundamentals and principles of diagnosis and treatment. Part two discusses etiological causes and methods for their detection. Part three, the biggest section of the book, is devoted to the symptomatology and treatments of allergic diseases. Dr. Urbach's book, in the reviewer's opinion, is of great value to the medical profession. The value becomes more apparent when one considers the author's reputation in the field of actual practice and research.

Medical Malpractice. By Louis J. Regan, M.D., LL.B., Member of State Bar of California. Price, $5.00. 256 pages. St. Louis: C. V. Mosby Company, 1943.

The author of this book is well qualified to write a treatise on medical malpractice, inasmuch as he is not only an attorney at law, but is a doctor of medicine as well. This naturally gives him an insight into the legal problems which are of vital interest to the medical profession. While this book is offered primarily to physicians and surgeons, and is of necessity quite elemental, it should also be of considerable use to the legal profession. The leading cases in the realm of medical jurisprudence from all the states in the Unoin are referred to. These are suitably indexed, and are easily accessible in the national, district, and state reports.

In this book pertinent facts regarding litigation to which doctors are apt to be subjected are brought out in a clear, cogent, and concise manner, a pithy abstract of cases relating to the matter is furnished, and the references are copious and well indexed. The author evidently took pains to offer a work in medical malpractice which is interesting and readily understood, and at the same time of immeasurable value to the physician. Especially is this true concerning the chapter on "Malpractice Prophylaxis."

It was not the intention of the author to supplant the services of an attorney when the need arises, but this volume should be helpful in preventing members of the medical profession from falling into legal pitfalls which can be easily avoided. The old axiom, "Ignorance of law excuses no one," is perhaps more pertinent for the medical profession than for any other group, inasmuch as a doctor must, in emergencies, make decisions which if not correct may result disastrously as far as legal responsibilities are concerned. Years ago Justice James Wilson, of the United States Supreme Court, stated: "The Science of Law should in some measure and some degree be the study of every free citizen and every free man. Every free citizen and every free man has duties to perform and rights to claim. Unless in some measure and some degree he knows those duties and those rights, he can never act a just and independent part." It is suggested, therefore, that this book be made a part of the library of every practicing physician so that he may be acquainted with his legal responsibilities and be able to cope with certain emergencies which are bound to arise from time to time.

Rehabilitation of the War Injured. Edited by William Brown Doherty, M.D. and Dagobert D. Runes, Ph.D. 683 pages. Price, $10.00. New York: Philosophical Library, Inc., 1943.

This volume is a compilation of articles, most of which have appeared elsewhere. Because of the large field to be covered, many of the articles are limited in length, and hence the tone of the volume stresses what can be done with patients, rather than how to do it. The articles on plastic surgery cover many of the very specialized techniques well. It is unfortunate that the illustrations are very poorly reproduced, as much would be gained by clear photographs. The few line drawings are well reproduced. Many of the authors are English, and cover in their discussions the experiences of the first two years of the war. All through the book stress is placed on treatment of the patient as a whole, with emphasis on physiotherapy and psychotherapy, individualized to fit the particular problem. Examples are quoted of rapid improvement when other factors than the surgical problems are taken care of. The article on burns discusses the immediate treatment in a superficial fashion, rather than the rehabilitation of burned patients. The article on immersion foot also stresses the acute problem, rather than the rehabilitation of the patient, but it is an excellent discussion. The social insurance aspects of the problem of rehabilitation are pointed out. The book should be most useful to the general medical officer, and to physicians who must see such cases in private practice after the war.

Synopsis of Tropical Medicine. By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P., Senior Physician to the Hospital for Tropical Diseases, Royal Albert Dock and Tilbury Hospitals; Consulting Physician in Tropical Diseases to the Dreadnought Seamen's Hospital, London; Director, Division of Clinical Tropical Medicine, London School of Hygiene and Tropical Medicine; Consulting Physician to the Colonial Office and Crown Agents for the Colonies; Consultant in Tropical Medicine to the Admiralty and to the Royal Air Force; Lumleian Lecturer, Royal College of Physicians, 1941. Price, $2.50. 224 pages with 5 plates. Baltimore: The Williams & Wilkins Company, 1943.

This little book was written as a guide to tropical medicine for the use of medical officers in the army. The author is one of the world's outstanding authorities in tropical medicine, and the present book reflects in every page his authoritativeness. It includes in a succinct but clear outline form all the diseases encountered in tropical climes, including the protozoal, metazoal, rickettsial, bacterial, virus, fungus, nutritional, and climatic diseases, as well as diseases due to animal and vegetable poisons. The book is remarkably complete and should furnish an adequate text for the medical student and the medical officer in the tropics. It should also be in the library of every general practitioner, for it must be remembered that a majority of the so-called "tropical diseases" are encountered in North Carolina. Recently a case—the first of its kind—of histoplasmosis was encountered in this state, and undoubtedly with demobilization of our armed forces many rare importations will appear. The text under review can be recommended without reservation.

Physiological Regulations. By E. F. Adolph, Ph.D. 502 pages. Price, $7.50. Lancaster, Pa.: Jacques Cattell Press, 1943.

The author defines physiological regulation as the self-management of organisms which results in constancy of function. He then presents much interesting, quantitative data indicating how nearly constant various functions are maintained in man and lower forms, how far various functions may be pushed off balance, and how rapidly and completely they return to the normal or usual level after the disturbance. The most interesting data deal with problems of water balance. The author is an authority on this subject, and the reader is impressed with the diversity of new and useful generalizations which derive from the use of very simple experimental equipment—a graduated cylinder, a clock, a pair of scales, and an educated mind. Indeed with this simpe, though rare, equipment, the author succeeds in founding a new science called "Quantitative Descriptive Physiology"—a physiology of facts which de-emphasizes fanciful interpretations.

The reviewer believes that this book will become a classic in physiology and that the author's scientific philosophy will appeal to the physician and the physiologist alike.

Wyeth, Incorporated

The formation of Wyeth, Incorporated, as one of the nation's largest ethical drug houses through the grouping of seven companies now operating in the pharmaceutical, biological and nutritional fields, was announced today by American Home Products Corporation, of which the new company will be a wholly-owned subsidiary.

The companies which will comprise Wyeth, Incorporated, include some of the oldest and most important units in the ethical drug industry. They are John Wyeth and Brother, Incorporated, of Philadelphia, 83-year-old manufacturer of pharmaceuticals; S.M.A. Corporation of Chicago, Illinois and Mason, Michigan, producers of products for infant nutrition; the Reichel Laboratories, Inc., of Kimberton and West Chester, Penna., one of the largest producers of blood plasma for the Armed Forces and manufacturer of biologicals, the Bartos system of allergenic protein diagnostics and a pioneer in the development of the new wonder drug, penicillin; Gilliland Laboratories, Inc., of Marietta, Pa., manufacturers of a comprehensive line of biologicals; Petrogalar Laboratories, Inc. of Chicago, makers of Petrogalar; General Biochemicals, Inc., of Chagrin Falls, Ohio, manufacturers of vitamins, and The Bovinine Company of Chicago, products for anemia.

Clinical Curare: Intocostrin

Since time immemorial South American Indians have smeared curare on the tips of blow-gun darts to paralyze game in hunting. The drug is prepared by native witch doctors as an infusion of the bark and stems of certain plants, particularly from a liana or vine, **Chondrodendron tomentosum.**

Having access to the largest quantity of useful curare ever gathered, the Research Laboratories of E. R. Squibb & Sons have developed methods for the preparation of a highly uniform, physiologically standardized, highly stable and sterile aqueous extract. This preparation is known as Intocostrin. Each cubic centimeter is adjusted by comparative tests on healthy rabbits to conform to the equivalent of 20 mg. per cc. of a standard drug, the important ingredient of which has been isolated in crystalline form and identified as d-tubocurarine.

Intocostrin, given intravenously or intramuscularly, exhibits the typical action of pure curare, that is, interruption of the nerve impulse at the neuromuscular junction with resulting paresis or relaxation of voluntary muscle. The drug acts within a minute or two after injection; the effect lasts about 15 to 30 minutes, disappearing rapidly as the drug is eliminated. Intocostrin has little effect on the circulation and none on the sensory nerves. It is inactive by mouth.

Intocostrin has been the subject of extensive laboratory and clinical investigation during the past three years. It has been described as indispensable in preventing traumatic complications which not infrequently accompany convulsive shock therapy of mental disease. Over 40,000 injections of Intocostrin have been given for this purpose, and its use extends the benefits of such therapy to patients who otherwise would be unable to obtain its benefits.

The preparation has been used in spastic children, its lissive action being prolonged by intramuscular injection and permitting physical therapy and muscle training, under favorable conditions. Prior to its availability no comparable treatment for these disorders was known.

In certain other resistant spastic disorders of the nervous system, the intravenous or intramuscular injection of Intocostrin may give sufficient relief from painful spasm so that the drug can be recommended for this purpose alone. Another interesting use of Intocostrin is as a diagnostic agent in the differential diagnosis of myasthenia gravis. A small fraction of the average adult dose produces profound exaggeration of symptoms in a myasthenic patient. The test is strongly positive even where the opposite prostigmine test is indefinite.

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ARTERIOSCLEROSIS

WILLIAM DOCK, M. D.
NEW YORK

The term "arteriosclerosis" is used in medicine in many ways, some of them mischievously misleading. Thus, "cerebral arteriosclerosis" is used to describe the altered personality and failing mental powers of the aged and the shrinking of the cerebral cortex seen in brains of many people after the age of 40, and in all over 70. Actually, this disseminated focal atrophy of the cerebral cortex, with its accompanying clinical features, is in no way related to the arteriosclerosis which leads to infarctions or hemorrhages in the brain. It is the alopecia or white hair of the nervous system. Anyone who has seen some of his bald-headed friends blush need not be surprised to find that special tissues of ectodermal origin may involute and disappear in adults even though the circulation of the tissue is excellent.

In cardiology it is a common error to diagnose cardiac enlargement or failure as being due to "arteriosclerotic heart disease", especially when valve lesions, hypertension or Graves' disease is not present. So far as the pathologist can determine, there is no arteriosclerotic heart disease save narrowing and occlusion of the epicardial branches of the coronary arteries, with resulting patchy or massive myocardial necrosis. The only "arteriosclerotic heart disease" is coronary occlusion; if we can not demonstrate evidence of myocardial necrosis, or pain due to myocardial ischemia, we can expect to find no significant relation between heart failure and arteriosclerosis of the coronary bed. Any other sort of "arteriosclerotic heart disease" is pure buncombe, and more ridiculous than the old term "chronic myocarditis" for non-valvular heart disease. Hypertrophied hearts that fail have excellent perfusibility unless they have coronary occlusion, in the usual meaning of that term[1].

Clinically, arteriosclerosis is almost always used as synonymous with atheromatous intimal degeneration, which is the arterial condition that most commonly causes disease and death. But the pathologist recognizes several forms of arterial degeneration—some purely aging processes, others of more complex and obscure origin. The normal or usual aging process is called fibrosis with ectasia (dilatation). This loss of elastic and muscular elements in the media is analogous to the skin changes which cause wrinkling, or the changes in the cartilages which make them susceptible to calcification and fibrillary degeneration in adult life. It leads to the elongation, widening and tortuosity which the radiologist so often notes under the fluoroscope; to the large tortuous temporals which we see, often before the age of 30, on our friends or ourselves; or to the tortuous brachials noted in our patients. This change is diffuse, bilaterally symmetrical and harmless. It makes the arteries less elastic, thus tending to raise systolic pressure; but the widening and lengthening compensate to some degree by creating a big reservoir of low elasticity to replace the small and highly elastic reservoir which we had in youth. This change does not seem to predispose to

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1. Dock, W.: Capacity of the Coronary Bed in Cardiac Hypertrophy, J. Exper. Med. 74:177-186 (Sept.) 1941.

other lesions; in the coronaries it makes occlusion less likely, since it may double the lumina of the epicardial branches. People with tortuous temporal arteries may have coronary occlusion, but many who have this condition by 30 belong to families notably long-lived, and their grandparents enjoy good health after showing this lesion for half a century.

There are other types of medial disease. Some, such as Moenckeberg's calcification, are also due to aging and rarely lead to any break or blockade in the vessel, while others, such as medial mucinous degeneration, seem to be due to some toxic or local vascular lesion and predispose to rupture or dissection of the aortic wall. All these types are included in arteriosclerosis, as is also the intimal thickening of disused vessels, like the ductus arteriosus, or the uterine vessels after the menopause.

Where does the atheromatous change in the intima fit into the picture? Certainly it is not like fibrosis with ectasia, a diffuse and usual aging change occurring in all old vertebrates. Most mammalian species and some human races rarely show such atheroma even in extreme old age. Chinese pathologists in Pekin[2] have done several thousand autopsies and found aortas quite different from those we see in people aged 20 to 80.

Atheromas are spots, focal lesions scattered in the vascular bed, but most numerous and largest in the lower abdominal part of the aorta and in the iliac arteries. They are common in coronary arteries and in the arteries of the legs. While some hypertensive individuals, after decades, show very little atherosclerosis, on the average the hypertensive has more and larger atheromas than do his fellows with normal pressure. One group of people have precocious and severe atherosclerosis — those with familial hypercholesterolemia and multiple yellow tumors of the skin and tendons (familial xanthomatosis)[3]. These people may have angina, and may even die of coronary occlusion in their 'teens and twenties, and their arteries to an unusual degree show the same changes as do others many decades later—lipid in droplets, in crystals and in macrophages, edema, necrosis, granulation tissue vascularizing the plaques, hemorrhages and calcification.

Atheromatosis apparently begins with the accumulation of lipid from the plasma in intima showing no collagenous change. Some believe that high fat diets cause precocious arteriosclerosis in diabetic patients, and there is good statistical evidence that obesity predisposes to these lesions. The high incidence of the condition in the prosperous Americans and northern Europeans, with their high intake of eggs, dairy products and animal fat, is contrasted with the lower incidence in people with low cholesterol intake. But again it must be emphasized that in long-lived families, like that of William Welsh, obesity and a notorious fondness for ice-cream, eggs, butter and rich foods may not be followed by atherosclerotic disease, even in the ninth decade. These families are at the far end of the atheroma spectrum from those with xanthomatosis, doomed to coronary disease no matter how meager their diets. Most of us fall in the middle, and perhaps dig our graves with our forks and spoons. After all, there is more pleasure and less risk in one good meal than in a fast drive on the crowded highway.

The relation of tobacco to atheroma is not established clearly, but some people probably become sensitive to tobacco, and allergic states may also predispose to the disease. Alcohol seems to have no effect, save when it leads to obesity, and victims of alcoholic cirrhosis have aortas almost as faultless as those of the Chinese. Women, even when obese and hypertensive, have less arteriosclerosis than their brothers; but like eunuchs and eunuchoids, they are not immune.

The relationship between hypertension and atheromatosis is certainly most important and most clearly established. In the lower part of the abdominal aorta and the iliac arteries, as Hamilton[4] clearly demonstrated, the pulse pressure, the systolic pressure, and the steepness of the pulse wave are greater than anywhere in the body. Where this sharpest and hardest blow falls, the intima of the systemic bed shows the most advanced changes in all of us. Arteriosclerosis is far more severe in the legs than in the arms, and the arteries of the legs carry a high pressure, due to gravity, when we are on our feet.

2. Snapper, I.: Chinese Lessons to Western Medicine, New York, Interscience, 1941.
3. Bloom, D., Kaufman, S. R. and Stevens, R. A.: Hereditary Xanthomatosis, Arch. Dermat. & Syph. 45:1 18 (Jan.) 1942.
4. Hamilton, W. F. and Dow, P.: Experimental Study of Standing Waves in Pulse Propagated Through the Aorta, Am. J. Physiol. 125:48 59 (Jan.) 1939.

Atheromas, usually rare in the pulmonary artery, are found there very often in mitral disease, in asthma, in pulmonary fibrosis and in emphysema. The hypertension in the pulmonic bed varies widely in its cause, but its result seems to be the same. It is, of course, true that syphilis in the media, or any other inflammation in or near the wall of an artery may lead to intimal thickening and atheroma; but in many cases of pulmonary arteriosclerosis there is either no inflammation in the lung, or none near the main pulmonary artery, which yet shows striking plaques. The relation between pulmonary arterial hypertension (with right ventricular hypertrophy) and pulmonary atheroma is perfectly obvious, and in many cases there is no conceivable way in which the pulmonary disease could have affected the wall of the artery except by raising pulmonary arterial pressure.

Although some pathologists have made curious difficulties for themselves in trying to relate atherosclerosis and hypertension, to the alert practicing physician the time relationship has long been evident. Hypertensive patients recognized early, as in insurance examinations, have far less retinal arteriosclerosis than those with hypertensive disease in its final stages. Often one can follow the progress of the disease in the retina, seeing how lesions absent for months or decades appear and progress more or less rapidly as hypertension goes from its asymptomatic to its advanced or malignant phase. Since hypertension always precedes retinal arteriosclerosis, it seems obvious that its relationship is causal, and not merely a chance combination of two conditions to which the individual is predisposed. As we shall see later, the lesions of retinal and of small renal arteries are simply miniature atheromas.

The renal biopsies performed by Castleman and Smithwick[5] have confirmed the observations made at autopsies over many decades concerning the close parallelism between the changes in small arteries in the retina and those in the kidney. Since, in groups of patients with equally severe retinal changes or equal freedom from change in spite of hypertension, the renal arteries show comparable degrees of alteration, it seems obvious that the renal arterial changes, like those in the retina, follow hypertension and progress more or less rapidly. This conclusion is confirmed by studies of renal blood flow, using the diodrast method. The Chesleys[6], Lester White[7], and Smithwick's collaborators[5] all found normal renal blood flow in many well established cases of hypertension. Fall in renal blood flow again parallels retinal arterial damage in groups of cases of varying severity. Masters[8] observed that clinical evidence of myocardial infarction was four or five times more frequent in the hypertensive part of the population, at any age, than in the normotensive. This might be due to fortuitous predisposition to two unrelated conditions, but other evidence such as localization of the atheromas in the parts of the vascular bed receiving the heaviest pulse beats and highest pressure, and evidence gathered from study of pulmonary atheromatosis and from all the observations on progress of retinal and renal arteriosclerosis force me to believe that hypertension aggravates or initiates atherosclerosis in a very high proportion of people. Those with unusually fine vascular beds may show little vascular change after years or decades of hypertension. Others, with highly susceptible vessels, show rapidly progressing atheromas in many parts of the vascular bed, and it is chiefly because of the atheromas that hypertensive patients suffer and die.

This is not the place to examine the causes of hypertension, but it is necessary to emphasize that organic renal disease or organic change in renal arteries is the cause of hypertension in only a small proportion of cases. If we exclude cases of chronic nephritis, chronic pyelonephritis and chronic hydronephrosis, it is found that the renal arterial bed is normal in about 10 per cent of hypertensives who die or who are sick enough to submit to sympathectomy; that about 20 per cent show minimal, 20 per cent mild, 35 per cent moderately advanced, and 15 per cent severe lesions of the renal arterioles[5,9]. Naturally, there is no reason to believe that if biopsies were done when hy-

5. Castleman, B. and Smithwick, R. H.: The Relation of Vascular Disease to the Hypertensive State. J. A. M. A. 121:1256-1261 (April) 1943.

6. Chesley, L. C. and Chesley, E. R.: Renal Blood Flow in Women With Hypertension and Renal Impairment, J. Clin. Invest. 19:475-482 (May) 1940.

7. Findley, T., Edwards, J. C., Clinton, E. and White, H. L.: Clearance of Diodrast, Phenolsulfonphthalein and Inulin in Hypertension and in Nephritis, Arch. Int. Med. 70: 935-947 (Dec.) 1942.

8. Masters, A. M., Dack, S. and Jaffe, H. L.: Age, Sex and Hypertension in Myocardial Infarction Due to Coronary Occlusion, Arch. Int. Med. 64:767-786 (Oct.) 1939.

9. Kimmelstiel, P.: Benigne Nephrosclerose und arterieller Hochdruck, Virchows Arch. f. path. Anat. 290:245-269, 1933.

pertension was first demonstrable and the retinal vessel still normal, anything but normal or minimally altered arterioles would be seen. The material in the arteriolar walls encroaches very little on the lumen; the so-called hyalin actually is a fluid rich in lipoid and protein, forming blisters here and there in the intima. At least 80 per cent of patients who died of hypertension have renal beds more easily perfusible than those of many elderly normotensive people with sclerosis chiefly in renal arteries larger than the arterioles[10]. But even though renal arteriolar change can not be considered an important factor in initiating hypertension, it is certain that renal hypertension must supervene when the vascular bed in the kidney is severely damaged by hypertension of other types. This may explain the malignant or rapidly progressive phase seen in the cases with most marked renal arteriolar disease.

While some pathologists speak of arteriolar sclerosis as though it were a specific process, distinct from atheromatosis, and emphasize the "hyalin" rather than the lipoid, which is invariably emulsified in the intimal blisters, the arteriolar lesions appear to be identical with atheromas, save for the difference in the size of the vessel involved. Such lesions, except in the splenic arterioles, are rare save in hypertensive patients, and even in them are scarcely ever seen in the heart, the voluntary muscles, or the skin. They are most numerous in renal, retinal and adrenal arterioles and are common in the pancreas of the hypertensive patient. One can trace all the variations from large atheromas to arteriolar hyaline thickening as one proceeds out from the aorta through the renal artery and its arcuate and interlobular branches to the afferent arteries of the glomeruli. In hypertensive diabetic individuals the lipoidal exudate is found even in the intraglomerular branches of the afferent arteriole. Nowhere, as one proceeds toward the capillary bed, is any abrupt change in the character of the focal intimal lesions apparent, and in no case of arteriolar thickening of the intima are atheromas absent or rare in the larger arteries. All we can say is that the processes which lead to atheromas in the aorta or the coronaries rarely affect the arterioles in the absence of hypertension, but in the latter condition miniature atheromas cause arteriolar sclerosis in most cases and in many tissues, the kidney and retina above all.

Atheromas, or intimal fatty streaks identical with them, occur even in infants and children, especially in the abdominal aorta. Although age gives them a chance to grow and to show organization and degeneration, it probably is not correct to regard them as inevitable results of involution. We know that people with proper lipid metabolism and normal blood pressure can reach advanced age without an atheroma, and that young people or rabbits, if they have high blood cholesterol, develop atheromas before any other involutional change is demonstrable in the body. It therefore seems probable that one can learn how to prevent such lesions or even to cause their retrogression. Since this form of arteriosclerosis is now a leading cause of death, and one to which nearly one-third of American physicians' deaths now are ascribed, it is encouraging to know that it is not a pure involutional disease, as unavoidable as the "sere and yellow leaf," but a disorder subject to analysis and finally to control[11].

10. Cox, A. J., Jr., and Dock, W.: Capacity of Renal Vascular Bed in Hypertension. J. Exper. Med. 74:157-175 (Sept.) 1941.

11. Hirsch, E. F. and Weinhouse, S.: The Role of the Lipids in Atherosclerosis. Physiol. Rev. 23:185-202 (July) 1943.

RECENT ADVANCES IN THE TREATMENT OF HYPERTENSION

JOHN R. WILLIAMS, JR., M.D.

WINSTON-SALEM

The treatment of hypertension may be divided into three parts: the treatment of the complications, the treatment of the high blood pressure *per se*, and the treatment of the etiological factors.

The chief complications of hypertension are uremia, heart failure and cerebral vascular accidents. While some progress has been made in the therapy of all these conditions during the last decade, it is beyond the scope of this paper to discuss their treatment.

Among the measures which may help reduce blood pressure are rest, sedation, reduc-

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tion of weight and the judicious use of blood letting. These will be discussed in greater detail later. The cyanates have not proven to be very effective in lowering blood pressure. There seems to be little justification for the various "nerve cutting" operations, for they help only a very small percentage of patients and it is not possible to select these in advance of operation. Ever since Harrison, Grollman and Williams first reported finding a substance in the kidney that would lower the blood pressure of hypertensive rats, a great deal of work has been done in an attempt to isolate this substance from the kidney and to secure it in large enough quantities to treat hypertension in human patients. Until this has been accomplished no decision can be reached as to the clinical value of this approach to the treatment of hypertension.

Hypertension is a symptom, not a disease, and it may be caused by many different mechanisms. Experimentally, hypertension may be produced in animals by various procedures which injure the kidney or interfere with its blood supply; by alteration of spinal fluid dynamics (for example, injection of kaolin into the cisterna magna); by severing the carotid sinus and aortic depressor nerves; by injecting various hormones in large quantities; and by alterations in diet. We can find counterparts of most of these mechanisms in patients with hypertension. Since some of the conditions which cause hypertension may be treated with fair success, it is important to attempt to determine the etiological factor in the individual patient and to correct it, if this is possible. Table 1 is a general outline of the classification we use at the present time.

The percentage of patients with hypertension that can be classified under one of these groups depends upon the criteria one employs. If rather loose criteria are used, about 80 per cent of patients with hypertension can be classified under one or a combination of the above groups; while if more rigid criteria are employed, less than 50 per cent can be so classified.

The first large group is composed of patients whose hypertension is in the main initiated by neurogenic factors. As a subgroup under this we have classified those who have psychogenic hypertension. Psychogenic factors are an important cause of hypertension. Whether they are to be regarded as primary (underlying) causes or as secondary (aggravating) causes is a difficult question to answer, but in any case it is true that a large percentage of hypertensive patients have various psychic disturbances, the relief of which results in a lowering of the blood pressure. We have subdivided this group into those persons who have internal conflicts (the psychoneurotic group) and those who are affected by external factors (the stress and strain group). The psychoneurotic hypertensive is usually an individual

Table 1.
Classification of Hypertension

I. Systolic Hypertension Only (Aortic Insufficiency, Heart Block, Atheroma of Aortic Arch, Thyrotoxicosis, etc.)
II. True Hypertension: Systolic and Diastolic
  A. Neurogenic
    1. Psychogenic
      a. Psychoneurotic
      b. "Stress and Strain"
    2. Medullary
      a. Diphtheria
      b. Poliomyelitis
      c. Encephalitis
    3. Increased Intracranial Pressure
    4. Reflex
      a. Carotid Sinus
      b. Aortic Depressor Nerves
      c. Ischemic Muscle
        (1) Cardiac
        (2) Skeletal
  B. Endocrine
    1. Pituitary (Basophilic Hyperplasia—Cushing's Syndrome)
    2. Adrenal
      a. Medullary—Adrenalin (Paraganglioma)
      b. Cortical Tumors
    3. Ovarian
      a. Menopause
      b. Arrhenoblastoma
  C. Renal
    1. Acute and Chronic Glomerular Nephritis
    2. Obstruction to Urine Flow
      a. Congenital Anomalies
      b. Ureteral Stricture
      c. Urethral Obstruction
      d. Pelvic Tumors
      e. "Spinal" Bladder
      f. Renal Calculi
    3. Urinary Tract Infection
      a. Pyelitis
      b. Pyelonephritis (Classical or Masked)
    4. Disease of Renal Arteries
      a. Renal Atheroma (Large and Small Arteries)
      b. Arteriolar Sclerosis
      c. Infarcts of Kidney
    5. Tumors of Kidney
      a. Wilms Tumor
      b. Other Tumors
    6. Coarctation of Aorta
  D. Metabolic
    1. Obesity
    2. Hypercholesteremia
  E. Miscellaneous
    1. Congestive Heart Failure
    2. Mixed
    3. Unclassified

with a labile blood pressure that is markedly influenced by emotional rest, sedation, and anesthesia, except in its terminal stages. He usually has tachycardia, and his pulse pressure is usually great in relation to his systolic blood pressure. The "stress and strain" group is typified by the business man who works under severe tension without getting adequate rest, physical exercise or vacations away from his work. These individuals often have increases in their blood pressures coinciding with the periods of stress in their daily living. It is important to recognize these two groups of hypertensives; for they are the people in whom physical activity is beneficial and should be encouraged, and in whom mental and emotional activity should be curtailed as much as possible, both with sedatives and with ordinary psychotherapy. They should be encouraged to find physical outlets for their energy.

There are a small group of patients who have hypertension due to disorders involving the brain stem, such as diphtheritic paralysis, poliomyelitis and encephalitis. The accompanying bulbar paralysis makes the recognition of this condition easy. It is important to remember that a brain tumor causing increasing intracranial pressure may also cause a rise in blood pressure. The differential diagnosis between brain tumors and hypertensive encephalopathy may at times be difficult, but can usually be arrived at if one carefully evaluates all of the factors present.

The reflex causes of hypertension are probably not of significant clinical importance, except for the reflex mechanism that causes increase in blood pressure from ischemic muscle. This probably is the mechanism responsible for the rise in blood pressure with angina pectoris, though one cannot be certain of this.

There is reason to believe that the pituitary, the adrenals and the ovaries may each be responsible for hypertension at times. If one uses a loose classification of Cushing's syndrome—that is, trunk obesity, striae, mild polycythemia and perhaps back pain or mild hyperglycemia—many patients will fall into this group.

Paraganglioma of the adrenal glands is a rare tumor that causes paroxysmal hypertension. It is characterized by sudden rises in the blood pressure, tachycardia, and often angina pectoris. The diagnosis is important because surgical removal of the tumor effects a cure. The diagnosis can sometimes be established by demonstration of the tumor with perirenal air injection, by the finding of increased amounts of adrenalin in the circulating blood, or by the discovery of constriction in the larger blood vessels. For example, in the ordinary hypertensive patient there is a pressure gradient of about 30 mm. of mercury between the brachial and the digital arteries. In the individual with paraganglioma of the adrenal gland this difference in pressure may be as high as 100 mm. of mercury. Since measurement of digital pressure is a fairly simple procedure, it should be more widely used.

Adrenal cortical tumors and arrhenoblastoma of the ovaries are masculinizing tumors, both of which may cause hypertension and both of which should be suspected when one notes changes in sexual development in a young hirsute hypertensive female.

What role the menopause plays in the production of hypertension is as yet uncertain. In the group of women who have many symptoms of the menopause, with "hot flashes" and nervousness, and who also have high blood pressure, there are some who are helped by substitution therapy. However, there is no evidence that any ovarian extract will lower the blood pressure in a hypertensive woman, except as it improves the psychic disturbances, and there is little justification for using substitution therapy if sedation will adequately control the symptoms.

The third large group of etiological factors in hypertension consists of various disorders of the kidneys and urinary tract. It is important to make an accurate diagnosis of the renal disorder present, for some of the conditions are amenable to therapy. Although these patients as a rule do not respond well to rest, sedation, vacations or psychotherapy, one should nevertheless give these means of therapy a trial. It is my belief that, unless the cause is definitely known, every patient under 35 years of age who has hypertension should be given a cystoscopic examination to rule out a correctable urinary tract disorder. Obstruction anywhere in the urinary system may result in hypertension. Pyelitis and pyelonephritis are common causes of increase in blood pressure. As a group such patients usually have moderately elevated blood pres-

sure with relatively high diastolic pressure. They may or may not complain of urinary symptoms. They often complain of some discomfort in the region of their kidneys. They usually have infection and at times have low-grade fever and an elevated leukocyte count. Kidney stones are often present in people with hypertension. Sometimes they should be removed, for their presence can cause further kidney damage and thus make the hypertension worse.

A common cause of hypertension in elderly individuals is arteriosclerosis of the renal artery. This commonly occurs at the point where the renal arteries leave the aorta, producing a situation similar to the application of a Goldblatt clamp. These people often have hypercholesteremia and have large pulse pressures due to inelasticity of the aorta. If hypercholesteremia causes hypertension it is probably through the production of renal arteriosclerosis.

Arteriolar sclerosis is usually caused by hypertension. Its development leads to renal ischemia, which may produce greater hypertension. Infarcts of the kidney are rare causes of hypertension, but their recognition is important, since nephrectomy has been reported as curing such cases.

Of the various tumors of the kidney the Wilms tumor, usually seen in children, is the most important one in the genesis of hypertension. Cure may sometimes be achieved by surgical removal of the tumor.

Coarctation of the aorta probably causes hypertension by the production of renal eschemia (the Goldblatt mechanism). Coarctation should be suspected in all young hypertensive patients, and its presence may be proved by the finding of an elevated blood pressure in the arms, with a normal blood pressure in the legs, as well as by roentgenograms showing the typical scalloping of the ribs.

The role of metabolic factors in the production of hypertension is uncertain. We do know that there are large numbers of patients who have marked obesity and hypertension, and in whom the blood pressure declines with loss of weight. It is probably wise to advise all hypertensive individuals to keep their weight at or below normal.

In the miscellaneous group we include those individuals who display a moderate rise in blood pressure at the time they develop congestive heart failure. These cases are of interest in that the blood pressure returns to normal when the heart failure improves. In a few people hypertension may be produced by more than one cause, and it may not be possible to decide which is the dominant factor. These then remain a vague group which we are still unable to classify. This group may be large or small, depending on the rigidity of one's criteria for classification. As our knowledge increases these cases should become fewer.

Conclusion

The various factors that may be responsible for increasing the blood pressure have been outlined and discussed. Intelligent treatment requires some knowledge of the etiological elements in the individual patient. A few patients can be cured, and many can be greatly helped if one approaches their problems in this manner.

HYPERTENSION DUE TO UNILATERAL RENAL DISEASE

Report of a Case

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BURLINGTON

Much has been written in the past few years regarding hypertension caused by unilateral renal disease. I have seen many cases of hypertension due to renal disease, but it is usually impossible to tell which kidney is the one more responsible for the condition. It would be poor judgment to remove one kidney when the other is not functioning completely. It is claimed that half of a normal kidney can take care of the elimination under average conditions, but a patient who has only one poorly functioning kidney is out of luck when he has an acute infection or when some other crisis overtakes him.

I hesitate to advise a patient to have a nephrectomy if there is any function of the kidney. When a patient has had a nephrectomy and the other kidney becomes badly diseased, there is sometimes very litte that we can do for him.

I shall not discuss the causes of hypertension but will refer you to an article by Dr. Keith S. Grimson in *Surgery, Gynecology & Obstetrics* for November, 1942[1].

From the Alamance General Hospital, Burlington, N. C. Submitted for publication April 1, 1943.

1. Grimson, K. S.: Surgical Treatment of Hypertension, Collective Review, Internat. Abstr. Surg. 75:121-134, 1942; in Surg., Gynec. & Obst., Nov., 1942.

Case Report

G. C. W. was first admitted to the Alamance General Hospital on October 27, 1937, suffering with left renal colic. At that time his blood pressure was 140 systolic, 100 diastolic. A small renal calculus was removed from the left ureter and a diagnosis of stricture of the lower left ureter was also made. He was advised to return for dilatation of the ureter, but failed to do so. In March of 1939 he was admitted to another hospital with severe pyelitis in a very toxic condition. At that time his blood pressure was 134 systolic, 86 diastolic. Since 1939 he has had occasional aching pains in the left loin, but no severe attacks of renal colic. During the spring of 1942 his family physician took his blood pressure and told him that it was up about 10 points, but did not tell him what it was.

In the early part of September, 1942, the patient volunteered for service in the army, but was turned down because of hypertension. He was told that his blood pressure was 180. He was admitted to this hospital on September 22, 1942, with a blood pressure of 180 systolic, 130 diastolic. He was a very robust individual, and except for his blood pressure his general condition was excellent. His past and family history had no bearing on his present condition.

Cystoscopic examination showed the trigone to be inflamed. Indigo carmine appeared on the right side in three minutes with good concentration, but none appeared on the left side in thirty minutes. We were able to pass a catheter only 5 cm. up the left ureter. A pyelogram showed the left pelvis and upper ureter dilated, with clubbing of the calices and strictures in the mid and lower ureter. The right kidney was well outlined but the left was poorly outlined. An intravenous pyelogram showed good function on the right side.

Laboratory findings: Examination of the blood showed 9700 white blood cells, a hemoglobin of 90 per cent, and 4,620,000 red blood cells. Urinalysis of a voided specimen showed the urine clear, with an acid reaction and a specific gravity of 1.012. There was no albumin or sugar. Microscopic examination showed 5 to 6 white blood cells and an occasional red blood cell. A culture was negative.

Diagnosis: Non-functioning left kidney due to stricture of the ureter.

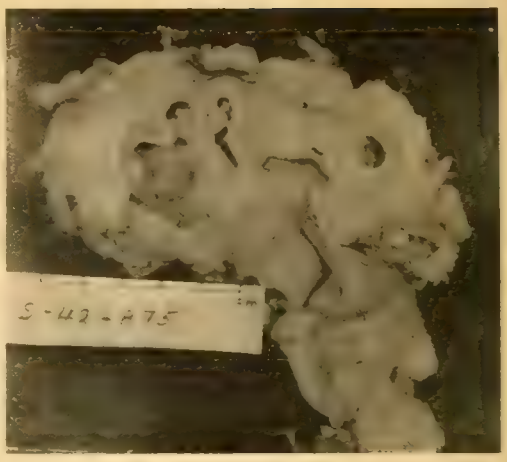


Fig. 1

Since the patient's blood pressure had recently become elevated, I believed that the left kidney was responsible, and advised a nephrectomy. This was done on September 26, 1942. The kidney was imbedded in a mass of fat, which was adherent to the kidney. The entire kidney, with much of the fat, was resected. The patient had an uneventful convalescence.

The fibrotic changes in the kidney are shown in figure 1.

The following is the report of the pathologist, Dr. J. B. Bullitt of the University of North Carolina School of Medicine:

"Gross Description: The kidney measures 75 by 40 by 25 mm., and is surrounded by a thin layer of fat, varying from 6 to 20 mm. in thickness. The capsule strips with some difficulty, leaving a roughened, granular surface which shows numerous minute areas of brown, apparently hemorrhage. There is marked atrophy of the kidney substance. The cortex and medulla are not clearly defined, but together measure 5 mm. The pelvis and calices are markedly dilated. The pelvic wall is thickened and slightly roughened. Eighty millimeters of ureter remain attached. This is markedly dilated and measures 40 mm. in circumference. The mucosa of the ureter also shows multiple minute areas of hemorrhage.

"*Microscopic Description:* There is marked atrophy of the kidney parenchyma with replacement by fibrous tissue. There are very few tubules remaining. The glomeruli appear very close together. Many of them appear only as small hyaline balls. The remainder are in various stages of degenera-

tion. Throughout there is a rather marked infiltration of the stroma, with lymphocytes and a few plasma cells. A section through the pelvis shows a moderate fibrous thickening, throughout which there is an extensive infiltration with lymphocytes and plasma cells. The epithelium is flattened and only one to two cells thick. Section of the ureter shows some fibrosis of the wall. The epithelium is of a transitional type and varies from two to eight cells in thickness."

The patient returned on the following dates to have his blood pressure checked:

Date	Blood Pressure
February 19, 1943	140/100
March 5, 1943	140/100
July 15, 1943	126/80
September 27, 1943	140/100

From the data listed above, it would seem that his blood pressure has become stabilized at the 140/100 level. Since a year has elapsed following his operation, I think the assertion is justified that the hypertension was due to the sclerotic kidney.

Discussion

It should be borne in mind that a ureter can be ligated and cut without causing renal colic. The kidney will atrophy without pain. On the other hand, if a small, irregularly shaped calculus starts down the ureter, waves of peristalsis in the ureter cause the agonizing pains of renal colic. After the ureters have been partially obstructed for some time and the ureter and pelvis have dilated to a certain degree, the patient no longer has the severe pains of renal colic, but a dull, heavy feeling in the loin or costovertebral angle. I recall one patient whose chief symptom was periodic enlargement of the abdomen. She would have to allow 4 inches in dress to take care of the expansion and contraction. Upon examination I found that she had a massive intermittent hydronephrosis due to a severe kink in the ureter. Any individual who has a dull ache or heavy feeling in the loin should have a complete urological check-up. Frequently a calculus lodged in a calix may cause a dull ache in the loin, and sometimes gastro-intestinal disturbances, with gas, belching and other misleading symptoms which are suggestive of appendicitis, gallbladder or stomach disorders. Consequently a fair percentage of these patients have been operated on for gallbladder or other abdominal diseases.

I recall another patient who denied having any attack of renal colic or any symptoms of kidney trouble. When he came in his only complaint was anuria for thirty-six hours. Upon examination I found one kidney completely dead and the other with severe hydronephrosis and a small calculus blocking the ureter. The calculus was pushed back into the pelvis, and the kidney began to function. The patient has been at work without symptoms for the past three or four years.

Conclusion

In all cases of hypertension it is advisable to have a urological check-up, particularly if there is any history of renal disease in the past. Always bear in mind that some of these kidneys may become ischemic from obstruction to the circulation, and never cause any of the classical symptoms of renal colic or any symptoms referable to the kidney.

A COMBINED ISOMETRIC AND STEREOSCOPIC TECHNIQUE FOR RADIOGRAPHIC EXAMINATION OF THE OBSTETRICAL PATIENT

CAPTAIN CARL T. JAVERT,
Medical Corps, Army of the United States

Roentgenography of the pregnant woman provides an excellent opportunity for diagnosis with the visual sense. Heretofore, the time-honored method has been a well developed sense of touch in the examining finger. The x-ray has improved the accuracy of obstetrical diagnosis and prognosis, when the films are properly exposed and interpreted.

Many radiographic techniques have been developed, including the comparative, frame, triangulation, grid, isometric scale, stereoroentgenometric, and stereoscopic procedures. The various methods have been discussed by Ball[1], Caldwell and Moloy[2], Clif-

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Read before the Section on Gynecology and Obstetrics, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

1. Ball, R. P.: Roentgen Pelvimetry and Fetal Cephalometry, Surg., Gynec. & Obst. 62:798-810 (May) 1936.
2. (a) Caldwell, W. E. and Moloy, H. C.: Anatomical Variations in Female Pelvis and Their Effect in Labor, with Suggested Classification, Am. J. Obst. & Gynec. 26: 479-505 (Oct.) 1933.
(b) Caldwell, W. E., Moloy, H. C. and Swenson, P. C.: Use of Roentgen Rays in Obstetrics: Roentgen Pelvimetry and Cephalometry, Am. J. Roentgenol. 41:305-316 (March) 1939.

ford[3], Granzow[4], Hodges and Dippel[5], Johnson[6], Moloy[7], Moore[8], Reuter and Reeves[9], Rowden[10], Snow[11], Steele and Javert[12], Thoms[13], Walton[14], Weitzner[15], and others. Each technique has its advantages, and also has important disadvantages and limitations which help to account for the numerous methods in use and their frequent alteration.

Our experience with Javert's modification[12a] of Granzow's isometric scale technique for the lateral film[4] has led us to the development of a distorted scale technique for the frontal film. This has been added to the stereoscopic technique of Moloy[7], thereby obtaining a *combined* method which is complete and comprehensive. It provides for an adequate survey of the obstetrical patient when the films are taken at term or early in labor. It offers the following advantages:

1. *Mensuration* of the anteroposterior, sagittal, transverse and vertical diameters can be performed with both the isometric scales and the stereoscope.
2. *Pelvic classification* can be accomplished, using for criteria size, mensuration and morphology. The *morphology* of the obstetric pelvis can be ascertained by direct vision in the stereoscope. Models of the anterior and posterior segments of the inlet, as well as linear diameters, assist in diagnosis. *Pelvic architecture* can be evaluated at the brim, midpelvis and outlet visually and by means of isometric scales.
3. *The mechanism of labor* can be studied visually in the stereoscope. This is invaluable for teaching purposes. The *position of the fetus* at the brim, midpelvis and outlet, Litzmann's and Naegele's obliquity, and lever actions can be observed.
4. *The cephalo-pelvic size relationship* can be studied by visual perception and by means of pelvimetry and cephalometry.
5. *Diagnosis and prognosis* are made with greater accuracy after correlation of the above data.

Technique of Making Films

The *combined* technique features identical positioning of the patient for the lateral and frontal films. This facilitates the joint work-up of the films for isometric scale pelvimetry. Determination of uncertain external anatomical landmarks, and measurements on the patient are not necessary.

For the frontal films the patient lies on the x-ray table in the position shown in fig. 1, the shoulders resting on two pillows placed lengthwise. A rolled sheet, about 4 inches in diameter, is placed under the lumbosacral curvature so as to tilt the pelvis forward in order to obtain a more direct view of the inlet. A wooden rod bearing two lead markers situated 9 cm. apart is placed under the patient. These appear on the stereoscopic films and are of value in setting the precision stereoscope for mensuration. They are not necessary when an ordinary stereoscope is employed. The x-ray tube is centered over the patient on a line between the anterior superior spines, and 25 inches from the x-ray film. A Bucky diaphragm is used. The tube is shifted 1¼ inches cephalad and the film is exposed for three to ten seconds, using 80 kilovolts and 40 milliamperes. The tube is then moved caudad for a distance of 2½ inches and the second frontal film is similarly exposed.

For the lateral film the patient lies in the same position, but is moved to a dumbbell-

3. Clifford, S. H.: X-Ray Measurement of Fetal Head Diameter in utero, Surg., Gynec. & Obst., 58:727-736 April 1934.
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5. Hodges, P. C. and Dippel, A. L.: Use of X-Rays in Obstetrical Diagnosis, With Particular Reference to Pelvimetry and Fetometry, Internat. Abstr. Surg. 70:421-446, 1940; in Surg., Gynec. & Obst., May, 1940.
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10. Rowden, L. A.: Simple and Accurate Method of Radiographic Pelvimetry, Brit. J. Radiol. 4:432-439 Sept. 1931.
11. Snow, William: Clinical Roentgenography of Pregnancy, Springfield, Charles C. Thomas, 1942.
12. Steele, K. B. and Javert, C. T.: (a) Roentgenography of Obstetric Pelvis: Combined Isometric and Stereoscopic Technique, Am. J. Obst. & Gynec. 43:600-610 April 1942; (b) Mechanism of Labor for Transverse Position of Vertex, Surg., Gynec. & Obst. 75:477-484 Oct. 1942; (c) Classification of Obstetric Pelvis Based on Size, Mensuration and Morphology, Am. J. Obst. & Gynec. 44:783-795 Nov. 1942; (d) Transverse Position and Mechanism of Labor, Internat. Abstr. of Surg. 75:507-517; in Surg., Gynec. & Obst., Dec., 1942; (e) and Powlitis, M. E.: Clinical Pelvimetry and Pelvic Palpation as Basis for Morphologic Classification of Obstetric Pelvis, Am. J. Obst. & Gynec. 45:216-224 Feb. 1943.
13. Thoms, H.: (a) Outlining Superior Strait of Pelvis by Means of X-Ray, Am. J. Obst. & Gynec. 4:277-283 Sept. 1922; (b) The Obstetric Pelvis, Baltimore, Williams and Wilkins, 1935; (c) and Wilson, H. M.: Lateral Roentgenography of Pelvis—Newly Modified Technique, Yale J. Biol. & Med. 9:305-309 (March) 1937; (d) Clinical Application of Roentgen Pelvimetry and Study of Results in 1,100 White Women, Am. J. Obst. & Gynec. 42:957-975 Dec. 1941.
14. Walton, H. J.: Intrauterine Roentgen Cephalometry and Pelvimetry, Am. J. Roentgenol. 25:758-76[illegible] June 1931.
15. Weitzner, S. F.: Simple Roentgenographic Method for Accurately Determining True Conjugate Diameter of Pelvis, Am. J. Obst. & Gynec. 30: 126-128 July 1935.

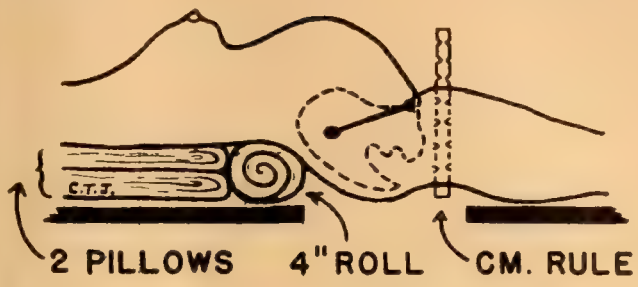


Fig. 1.

Position of patient for lateral and frontal films.



Fig. 2.

Lateral film. Antero-posterior, sagittal and vertical diameters are measured.

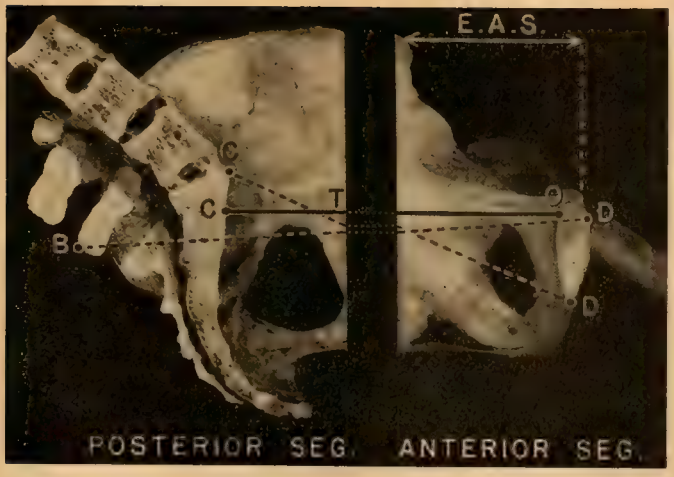


Fig. 3.

Sagittal section of pelvis, showing anterior and posterior segments.

shaped board of plywood supported on an ordinary stretcher. The hips are placed over the narrow portion of the board with a lead sheet beneath the buttocks in order to minimize secondary radiation. A notched metal centimeter scale is placed in front of the symphysis pubis in a vertical position. The x-ray table is now turned vertically and the patient is placed in front of it (or a portable Bucky diaphragm can be employed). One hip touches the table and the position is maintained with a fabric belt. The x-ray tube is centered on a line drawn between the trochanters and the posterior superior spine and situated 36 inches from the film. The exposure varies from twelve to twenty seconds, depending on the size of the patient, and 80 kilovolts and 40 milliamperes are used.

Analysis of the Lateral and Frontal Films

Mensuration

The lateral film, placed in a view box, is studied first. A baseline, X-Y, is drawn perpendicularly to the tip of the centimeter scale, as shown in figure 2. It corresponds to the top of the x-ray table. Certain other lines are drawn on the film, using a red wax crayon. Line C-O is the obstetrical conjugate drawn in the plane of the iliopectineal lines. T-S is drawn perpendicularly to C-O through the bases of the ischial spines. It serves to divide the pelvis into anterior and posterior segments, as shown in figures 3 and 4. Line C-T is the posterior sagittal diameter of the inlet, and T-O is the anterior sagittal diameter. B-S is drawn parallel to C-O and constitutes the posterior sagittal diameter of the midpelvis. A-Tu is the posterior sagittal diameter of the outlet, and can also be measured clinically.

Calipers are employed for the measurement of the anteroposterior diameters, using the centimeter scales on the film. Points T, AT, PT, S and Tu correspond to the horizontal planes of their respective transverse diameters—namely, the transverse, anterior transverse, posterior transverse, interspinous and intertuberous diameters, as indicated in figure 5. The vertical heights of the planes of these diameters from the x-ray table can be determined by measuring the distance from the baseline X-Y to these points. These distances are then recorded so as to be readily available when the transverse diameters are measured on the frontal film with the distorted centimeter scales shown in figure 6. These scales were made by exposing a metal ruler at levels from 0 to 16 cm. above the x-ray table at a target-film distance of 25 inches. The films bearing the scales were mounted in an ordinary picture frame.

The frontal film is now placed before a view box, and line T_1-T_2 is drawn with red

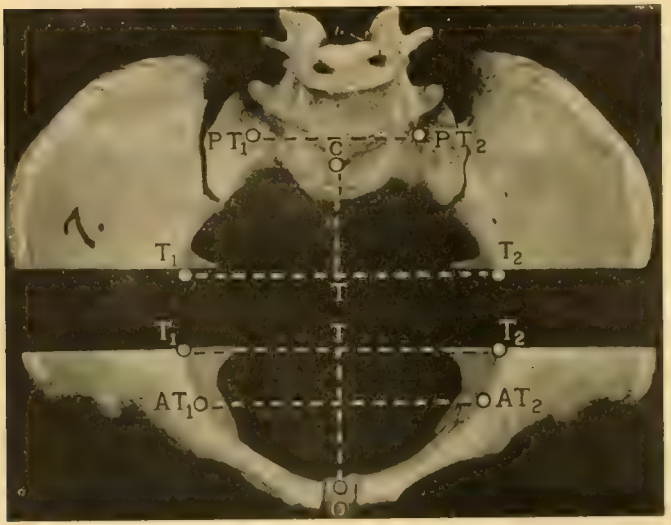


Fig. 4.

Frontal view of pelvis, showing anterior and posterior segments and the diameters of each.

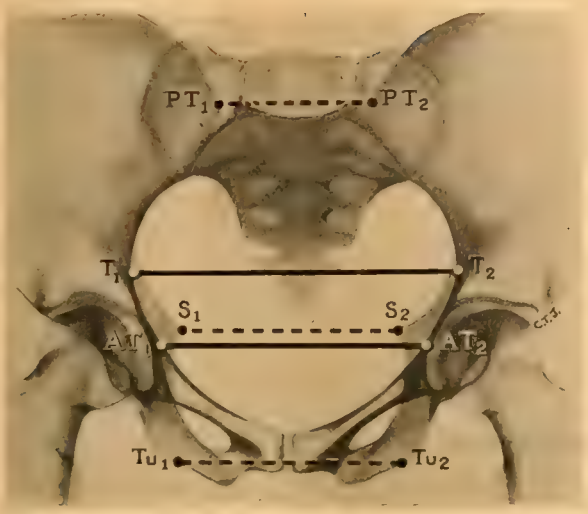


Fig. 5.

Frontal film. Transverse diameters only are measured on distorted scales shown in figure 6.

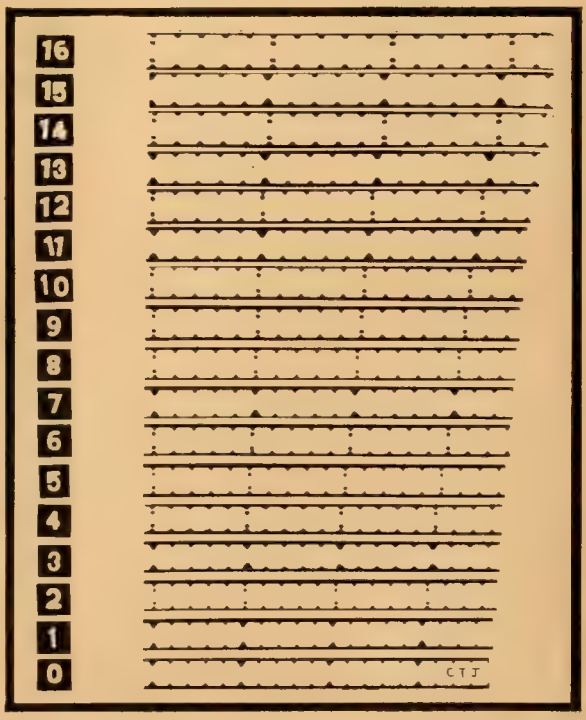


Fig. 6.

Distorted centimeter scales.

wax crayon at the widest portion of the inlet, as shown in figure 5. It constitutes the transverse diameter and lies in the coronal plane of the line T-S placed perpendicularly to C-O on the lateral film. The anterior transverse diameter (AT_1-AT_2) is drawn between the iliopectineal eminences situated at the thinnest portions of the acetabula. The posterior transverse diameter (PT_1-PT_2) is drawn between the tuberosities of the iliac bones. This diameter can be measured clinically between the inner margins of the dimples of the rhomboid of Michaelis. The interspinous (S_1-S_2) and intertuberous (Tu_1-Tu_2) diameters are also drawn. The length of each diameter corresponding to the vertical height of the horizontal plane of each respective transverse diameter is measured with the calipers on the distorted scale. The baseline X-Y assists in determining the vertical heights.

Funnel pelves can be detected by measuring the intertuberous diameter. All too often clinical measurements of this diameter are incorrect. By x-ray, this diameter measured from 10 to 12 cm. in 97.5 per cent of 400 patients (table 1). The incidence of funnel pelves in this series of patients was only 0.50 per cent. According to clinical measurements the incidence is very much higher; in 3.3 per cent of 27,951 patients, the intertuberous diameter measured 8 cm. or less.

Table 1.

Incidence of Various Measurements of the Intertuberous Diameter by X-Ray in 400 Cases

Measurements	*Number of Cases*	*Per cent*
12 cm. or over	147	36.75
11-11.9 cm.	198	49.50
10-10.9 cm.	45	11.25
9- 9.9 cm.	8	2.00
8- 8.9 cm. or less	2	0.50
	400	100.00

The frontal films are now placed in the precision stereoscope. The images of the lead markers are placed 9 cm. apart. The various transverse diameters drawn with red crayon produce images which assist in the location of these diameters in the stereoscope, thereby facilitating mensuration. The accuracy of these measurements depends on the experience of the observer. They are recorded for comparison with those obtained with the isometric scales, thereby providing a check on mensuration.

Classification of pelves

The morphology of the inlet is now studied in the precision stereoscope. The classification of Caldwell and Moloy is used. If the precision stereoscope is not available, morphology can be studied with an ordinary stereoscope. The transverse diameter readily divides the inlet into anterior and posterior segments. Cardboard models, drawn to scale from average measurements, are shown in figure 7. They are used to classify each seg-

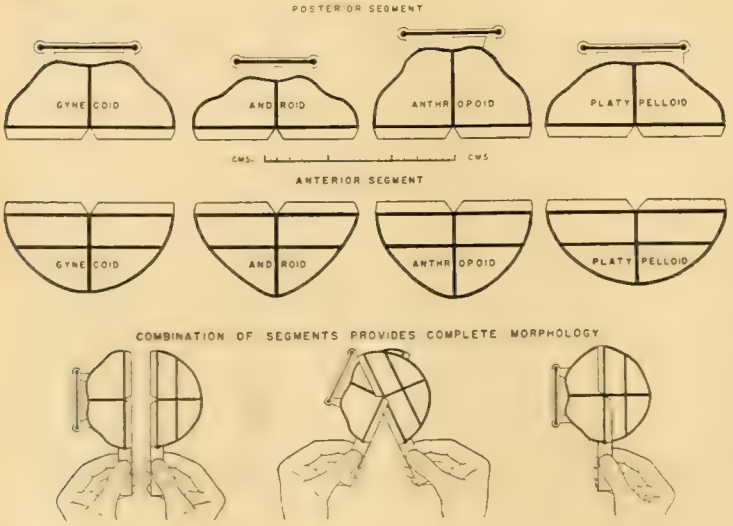


Fig. 7.

Cardboard models of anterior and posterior segments of inlet, used for diagnosis of morphology.



Fig. 8.

The stereoscope is employed for study of morphology, mensuration, mechanism of labor and cephalopelvic size relationship.

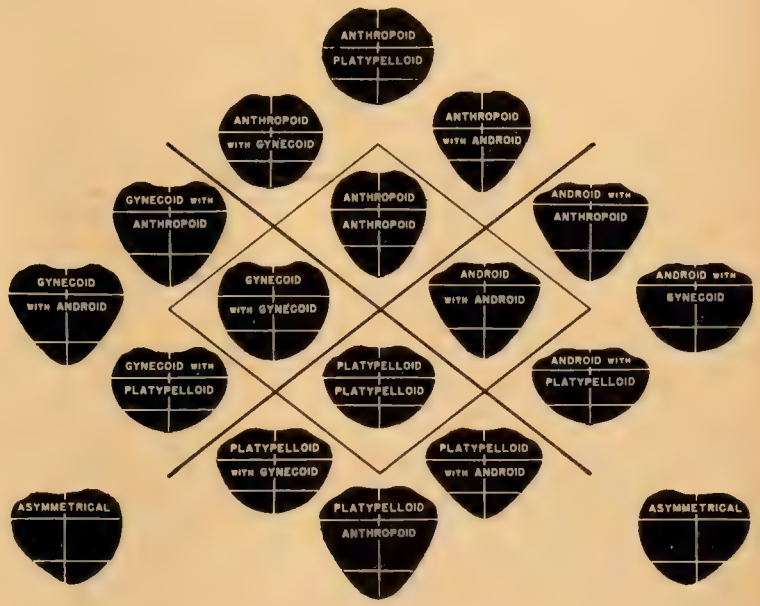


Fig. 9.

Eighteen pelvic types are theoretically possible. All have been observed.

	POSTERIOR SEGMENT				ANTERIOR SEGMENT			
	MORPHOLOGY	POSTERIOR TRANS.	POSTERIOR SAG.	TRANS.	MORPHOLOGY	ANTERIOR TRANS.	ANTERIOR SAG.	C. O.
GYNECOID								
pure		7.5	5.0	13.2		11.3	6.2	11.2
mixed		7.1	5.5	12.8		10.8	6.4	11.9
ANDROID								
pure		5.9	3.7	12.9		10.2	6.5	10.2
mixed		6.0	3.9	13.1		10.9	7.1	11.0
ANTHROPOID								
pure		7.5	6.0	12.2		10.2	6.6	12.6
mixed		7.2	6.1	12.4		10.9	6.2	12.3
PLATYPELLOID								
pure		8.2	4.8	14.3		12.4	5.8	10.6
mixed		8.0	4.7	14.0		11.9	6.1	10.8

Fig. 10.

Classification of pelves, using mensuration and morphology as criteria.

Table 2.

Incidence of Pelvic Types According to Anterior and Posterior Segments in 1,000 Cases

Pelvic morphology of inlet	*Anterior Segment Number*	*Anterior Segment Per cent*	*Posterior Segment Number*	*Posterior Segment Per cent*
Gynecoid	575	57.5	563	56.3
Android	138	13.8	196	19.6
Anthropoid	176	17.6	170	17.0
Platypelloid	111	11.1	71	7.1
Total	1,000	100.0	1,000	100.0

ment individually, as shown in figure 8. About half of the pelves we have studied have been pure types, and about half have been mixed. All combinations have been observed, including the asymmetrical forms, as indicated in figure 9. The incidence of the various pelvic types according to segments is given in table 2.

Pelvic architecture is also evaluated. The lateral bore and the character of the sacral curvature is observed in the lateral film. In the stereoscope, attention is directed to the sidewalls. With the data obtained thus far, the pelvis can be classified according to size, mensuration and morphology. The criteria for these classifications are provided in figure 10. These average measurements were used to construct the models shown in figure 7.

Mechanism of labor

The mechanism of labor is now observed. An ordinary ruler, placed in the plane of the occipitofrontal diameter, facilitates the diagnosis of position and obliquity. A range of 22.5 degrees on either side of the transverse, anteroposterior, and oblique diameters is used to determine position, as shown in figure 11. The transverse positions, L. O. T. and R. O. T., constitute 64 per cent of the total number of presentations at the brim and midpelvis. Litzmann's obliquity is present in about 75 per cent of the cases at the inlet; whereas in the midpelvis Naegele's obliquity is the most frequent, as is shown in table 3. The entire mechanism of labor can be interpreted visually. A description of the mechanism for the transverse position, based on physiologic evidence obtained *in vivo* by means of roentgenograms, has been recently published by Steele and Javert[2b]. It resembles closely the mechanism described by Pinard and Varnier[16], who based their views on pathologic evidence obtained from frozen sections of women dying in labor.

Table 3.

Incidence of Obliquities of the Fetal Head at the Inlet and Midpelvis in 682 Cases

Obliquity	*At Inlet*	*In Midpelvis*
Litzmann	75.2	14.8
Naegele	17.9	76.8
Neutral	6.8	8.3
	99.9	99.9

Cephalopelvic size relationship

Cephalopelvic size relationships can be observed by direct vision in the stereoscope. The fetal head can also be measured, except in cases of marked Litzmann's or Naegele's

16. Pinard, A., and Varnier, H.: Etudes d'anatomie obstetricale normale et pathologique, Paris, G. Steinheil, 1892.

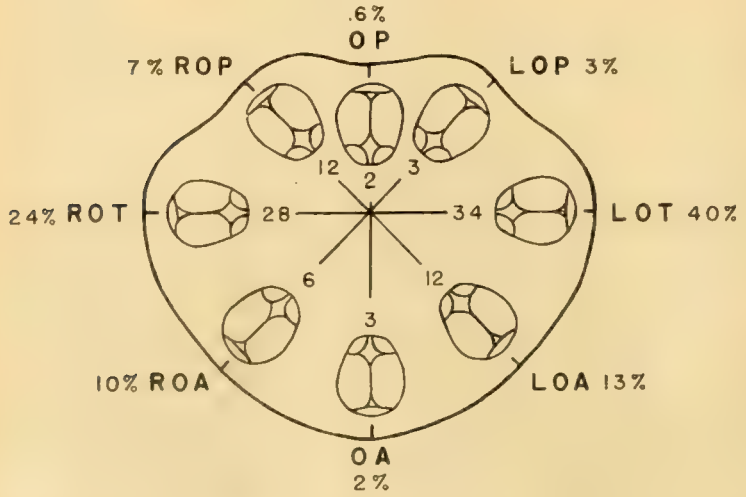


Fig. 11.

The incidence of positions at the brim from roentgenograms of 1,040 cases. (Figures within the diagram are incidences in the midpelvis.)

obliquity. The biparietal, occipitofrontal, and suboccipito-bregmatic diameters can also be measured. The linear relationship of these diameters to the pelvic measurements are evaluated. Circles of cardboard, measuring 9, 10 and 11 cm., can be placed in the image of the pelvic inlet and passed through the birth canal. They assist in determining size relationships.

Diagnosis and prognosis

Information obtained with the *combined* technique is a valuable adjunct to the clinical examination. The data are obtained as presented above and are recorded on a special x-ray report sheet. The results of mensuration of the various diameters with the isometric scales and with the stereoscope are noted, for ready comparison. Pelvic morphology and architecture are also described. The mechanism of labor is stated. After the diagnosis, a prognosis as to the type of delivery is attempted. The records are placed in the history and become an integral part of it. Duplicate copies are made for the research files.

Conclusions

A *combined* isometric and stereoscopic technique for the roentgenologic study of the obstetric patient has been presented. With this method the positioning of the patient is identical for the lateral and the frontal films. This facilitates the joint work-up of the films with regard to isometric mensuration of the brim, midpelvis and outlet. Measurements can also be made with the precision stereoscope, and serve as a check on those obtained by means of isometric scales.

Pelvic architecture at the brim, midpelvis, and outlet is evaluated. The combined technique also provides for the classification of pelves, using size, mensuration and morphology as criteria. Position, obliquity, and the mechanism of labor can be studied in the stereoscope. Cephalopelvic size relationships can be determined.

Visualization of the entire birth canal provides a "blue print" of the passage and passenger which is of material assistance in making difficult decisions, and especially if operative delivery is contemplated. Diagnosis and prognosis are made with greater accuracy as experience is acquired. X-ray has supplied the opportunity for use of the sense of vision in obstetrical diagnosis, which heretofore depended mainly upon the sense of touch in the examining finger.

TYPHOID FEVER IN CHILDREN

ANGUS McBRYDE, M. D.
and
FRANK LEDESMA-DIAZ, M.D.
DURHAM

Many observers have stressed the classic findings of typhoid fever in adults, which were so clearly described by Gerhard[1]. Still others[2] have called attention to the symptomatology of the disease in infants and young children. However, we believe that many cases of typhoid fever in this early age group are mis-diagnosed because the complaints are given by a second person, the symptoms are atypical, the course often short and, last but not least, the disease is not suspected because of its supposed rarity.

During the past decade we have observed 46 proven cases of typhoid fever in patients under 14 years of age (25 white and 14 Negro children) on the Pediatric Service at Duke Hospital; in several other cases typhoid was suspected but not proven. We believe that certain of the data on this series deserve emphasis.

The Age Incidence

Thirty of the 46 patients were 6 years of age or less, while 10 were under 2 years of age. The youngest was 3 months old. Three of the 46 children had been previously immunized with three injections of vaccine (twelve, fifteen, and twenty-one months before infection), and 3 others were given one or two injections of vaccine after exposure to a known case, probably during the incubation period. The age distribution illus-

From the Department of Pediatrics, Duke Hospital and Duke Medical School, Durham, North Carolina.
Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

1. Gerhard, W. W.: Typhus Fever, Showing the Distinction Between This Form of Disease and Dothinenteritis or the Typhoid Fever with Alteration of the Follicles of the Small Intestine, Am. J. M. Sc. 19:289-322 (Feb.) 1837.
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(d) Dietrich, H. F.: Typhoid Fever in Children, Study of 60 Cases, J. Pediat. 10:191-201 (Feb.) 1937.
(e) Alarcon, A. G.: La Fiebre Tifoidea en el Lactante, Rev. Mex. de pediat. 12:68-77 (Feb. 10) 1942.

Table 1.

Symptoms (Complaints) Before Admission
(46 Cases)

Fever	34	Weakness	4
Headache	15	Chills	4
Malaise	15	Bleeding mouth	1
Diarrhea	13	Edema of eyelids	1
Anorexia	13	Urinary frequency	1
Vomiting	12	Hematuria	1
Abdominal pain	10	Cough	2
Abdominal distention	2	Epistaxis	3
Constipation	5	Pain in chest	1
Drowsiness	10	Earache	1
Irrational state	9	Back pain	1
Irritability	5	Muscular aches	1
Stupor	4	Sore throat	1
Vertigo	1	Pain in neck	1
Delirium	1	Genital pain	1
Nausea	4	Pyuria	1
Rash			

Table 2.

Physical Signs on Admission
(46 Cases)

Fever	46	Gingivitis	1
Abdominal distention	29	Rales in chest	6
Abdominal tenderness	28	Ankle clonus	5
Spleen enlarged	10	Stiff neck	4
Liver palpable	10	Lumbar tenderness	2
Doughy abdomen	6	Kernig	2
Drowsiness	7	Romberg	1
Irritability	7	Ptosis of eyelid	1
Irrational state	7	Gen. spasticity	1
Stupor	7	Rash (Rose spots-2)	5
Acidosis	1	Hem. diathesis	4
Dehydration	5	Pain on knee motion	1
Tonsillitis-Pharyngitis	9	Catarrhal otitis media	2

trates the importance of routine typhoid immunization early in the second year of life. The majority of North Carolina children, if they receive vaccine at all, are not immunized until they have been in school for a year or more. Thirty of our 46 patients were under school age. We have been repeatedly informed by parents of children who have moved to our community from other areas that their physicians, often pediatricians, had told them that typhoid immunization is not necessary since, with pure milk and water supplies, the disease no longer occurs.

Symptoms and Signs

Table 1 shows the symptoms of the patients before admission. Prolonged fever without demonstrable cause was present in 34 cases. In more recent cases it was noted that the fever was not influenced by sulfonamide therapy. Headache, which would not be noted at 2 years of age or less, was the second most common complaint in older children. These symptoms were followed in order of frequency by general malaise, diarrhea, anorexia, vomiting, abdominal pain and drowsiness. An irrational state, irritability, stupor and delirium might be grouped under one heading as a very frequent symptom. Other less common complaints were vertigo, rash, weakness, chills, bleeding mouth, edema of the eyelids, urinary frequency, hematuria, cough, epistaxis, pain in the chest, earache, back pain, muscular aches, sore throat, pain in the neck, genital pain and pyuria.

Table 2 catalogues the physical signs on admission. Fever was present in every case. Next in order and obviously of great diagnostic importance were abdominal distention, which was present in 29 patients, and abdominal tenderness, noted in 28. Splenic enlargement, often mentioned as a sign in typhoid fever, was noted in only 10 children, while rose spots were found in only 2. Dehydration, noted in 5 patients, usually was due to lack of an adequate fluid intake at home. Tonsillitis and pharyngitis were present in 9 children and rales were present in 6. Other less common signs were catarrhal otitis, gingivitis, ankle clonus, stiff neck, lumbar tenderness, positive Kernig and Romberg signs, ptosis of the eyelids, generalized spasticity, rash, hemorrhagic diathesis and pain on knee motion.

The onset of symptoms of typhoid fever in early childhood, while not abrupt, is much less gradual than in adult life. The child may suddenly become feverish, lose his appetite, complain of abdominal pain, and become irrational or have other nervous symptoms. As the disease progresses he usually becomes drowsy or comatose. A minority of children may be so excitable or disoriented that encephalitis is suspected. As the disease progresses drowsiness usually supplants the excitability. The fever ranges from 39 to 40 C. (102 to 104 F.), and there is a gradual fall over a period of a week or more as the disease subsides. The pulse rate, while it may be normally elevated for the amount of fever, seldom is excessively rapid (above 120) and not infrequently may be rather slow. However, the slow dicrotic pulse of the adult typhoid patient seldom is seen in the child.

Duration

The duration of the disease could be calculated with a fair degree of certainty in only 39 cases, since the history often was

Table 3.

Laboratory Data

	No. of Cases		*Total Number*
	Pos.	*Neg.*	*Examinations*
Blood cultures	23	13	91
Widal tests	26	15	83
Stool cultures	19	19	187
Urine cultures	3	17	54

unreliable or confusing. In the patients under 2 years of age (10 cases) the average duration was twenty-one days. In those from 2 to 6 years (14 cases) the average was twenty-six days, and in those from 6 to 14 years (15 cases) the average was thirty-two days. The shorter course in infancy, gradually increasing in length with age, is in agreement with other published reports.

Complications

The most frequent complication was upper respiratory infection, which was present in 9 cases. Five patients also had otitis media. Three children had definite bronchitis and three others had bronchopneumonia. Furunculosis and encephalitis each occurred twice. The following complications each occurred in one case: psychosis, arthritis, pyuria, gonococcus vaginitis, rectal prolapse, thrombocytopenia. There was one recurrence, and 2 patients died.

Laboratory Data

Table 3 summarizes the laboratory data in this series. In every case the diagnosis was confirmed by a positive blood or stool culture or by an increasing titer of agglutinins in the blood serum. Twenty-three of 36 patients tested had positive blood cultures. Seven of the 13 patients with negative cultures had only one culture made, while one had his first culture in the fifth week of the disease. Twenty-six of 41 patients had positive Widal tests. This low incidence (63 per cent) of positive Widal reactions illustrates the necessity of the combined use of blood, stool, and urine cultures with this procedure in the diagnosis of typhoid fever. Stool cultures were made in 38 cases, and were positive in 19. Urine cultures, made in 20 cases, were positive in 3.

The routine procedures for diagnosis of typhoid fever are the Widal test and stool and blood cultures. The following data on the 33 cases in our series in which all three procedures were employed demonstrate the danger of relying on any one test alone:

Combined Diagnostic Procedures (33 Patients)

Positive agglutinins, blood and stool cultures....4
Positive agglutinins and blood cultures.....7
Positive agglutinins and stool cultures.....4
Positive blood and stool cultures.....4
Positive agglutinins only 6
Positive blood cultures only 7
Positive stool cultures only 1

Especially important are the 12 patients who had negative agglutination tests; in 4 of them the diagnosis was proved by positive blood and stool cultures, in 7 by blood cultures alone, and in 1 by stool cultures only.

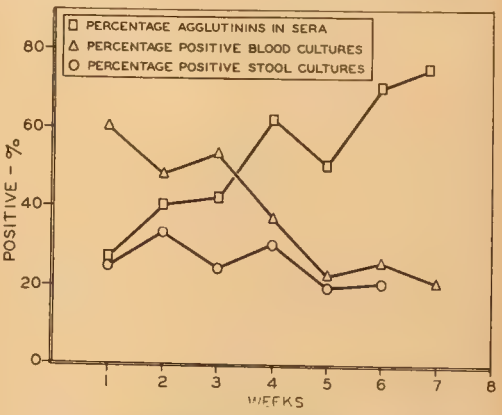


Chart 1. Laboratory Findings, in Relation to Duration of the Disease.

Chart 1 shows the percentage of positive laboratory findings according to the duration of the disease. During the first week of the disease 27 per cent of the children tested had agglutinins present in their sera in a dilution of at least 1:80. This increased gradually until at the sixth week 70 per cent of those tested had agglutinins. Positive blood cultures were more frequent during the first three weeks of the disease, but may persist into convalescence and even after defervescense, as is illustrated by the case of J. C. described below. Typhoid bacilli were found in the stools with about the same frequency (20-30 per cent) during each week of the disease.

The level of the white blood cell count during typhoid fever often has been discussed. During the first eight days we found that 24 counts were above 7,000, 10 of them being between 17,000 and 21,000; while 17 counts were below 7,000. From the eighth to the fourteenth day of the disease, 39 counts were above 7,000 and 22 were below this level. From the fourteenth to the twenty-second day, 25 counts were above

7,000 and 22 counts were below this level. It can be noted, however, that only 4 counts in this period were 11,000 or more. The general level of the white blood cell count varied very little after the twenty-second day of the illness.

It is then obvious that the absence of leukopenia or even an increased leukocyte count of from 11,000 to 21,000 does not rule out typhoid fever.

The differential white cell count on most children showed a slight predominance of the lymphocytic cells, but during the first week the higher counts usually were associated with a polymorphonuclear response.

Treatment

Treatment consists of an adequate fluid and vitamin intake, proper mouth care, sedation when necessary and enemas as needed in patients who tend to be constipated. The diet should be largely liquid, though soft foods are well tolerated. We see no reason for excluding milk from the diet; in fact, it was the basis of our diet in the more severe cases.

In 13 cases sulfonamides (sulfathiazole 6, sulfanilamide 2, sulfapyridine 3, sulfadiazine 1, sulfapyrazine 1) were tried in adequate dosages but without improvement, the possible exception being one infant of 3 months (B.S. described below) who received sulfathiazole. No adverse effect was noted from use of the sulfonamides.

Transfusions are of value in anemic patients, but may cause severe reactions in some cases. They should be used with caution.

Source of Infection

It was difficult to trace the source of infection in most cases, as many of our patients lived at a distance, so that a history of contact with other cases or with carriers and evidence of contamination of the milk and water supply could not be obtained. In 9 instances there was a history of a recently proven case of typhoid fever in the immediate family. The following examples illustrate the constant danger of exposure to typhoid which the non-immunized individual runs:

A child, aged 5 years, had a neighbor who had had typhoid fever two months before. The child had been drinking water from a spring at the bottom of the hill on which the typhoid patient resided.

Another patient, aged 15 months, the daughter of a law student, developed typhoid fever two weeks after a Negro nurse had returned to work following an undiagnosed short febrile illness. Typhoid bacilli later were found in the urine and stools of this nurse. This case is of special importance in revealing one of the many limitations of the "health card" method of certifying the health of servants; syphilis and tuberculosis are only two of the many diseases which they may carry.

Several children, including one 18 months of age, came down with the disease following a visit to the country. Here they had been drinking water from a well or spring. In the entire series one is impressed with the frequency of infection from a contaminated well or spring. Apparently the danger is much greater than when the water comes from a pump. However, rural living cannot be incriminated in all cases, since only 26 of our 46 patients were from rural areas, while 19 received their milk and water from an apparently well supervised supply.

Case Reports

The following two cases illustrate the difficulty of diagnosing typhoid fever in children.

B. S., aged 3 months, white, the child of a farmer, was admitted with the complaint of diarrhea of four days' duration. She was fretful at the onset, but had no fever for the first two days though she refused feedings and had fifteen to twenty yellow watery stools daily. Examination showed an acutely ill, dehydrated infant who was pale and had rapid, shallow respirations. The carbon dioxide combining power was 29 volume per cent, the hemoglobin was 61 per cent, and there were 4,400 white blood cells. The white cell count subsequently rose on the sixth day to 22,000. Sodium lactate solution and sulfathiazole were given and the child improved rapidly, the temperature reaching normal in forty-eight hours. She had one rise of temperature for a twenty-four hour period on the twelfth day, but otherwise appeared normal. Repeated blood cultures and Widal tests were negative, but typhoid bacilli were grown from the stool on the second and third hospital days. The entire duration of the fever was six days.

R. D., a white male of 4 years, was admitted because of spells of fever, vomiting

and diarrhea occurring at intervals of two to three weeks for four months. These would come on suddenly with vomiting, and usually lasted two to three days, after which he would again feel well and have no further symptoms for about three weeks. The present illness began suddenly twenty-four hours before admission, when he complained of headache and stomach ache, and was quite drowsy and feverish. He was nauseated at this time but did not vomit. Examination showed a well nourished, well developed child who did not appear acutely ill, though his temperature was 40.6 C. (105 F.). There was some abdominal pain, and he cried occasionally. The entire examination was negative. On the day of admission, the child had five stools, one of which contained free blood. The following day his temperature was normal and he seemed well, although stool cultures taken the day of admission showed a heavy growth of typhoid organisms. Thereafter, his temperature remained normal. This history of recurring fever, diarrhea, and vomiting in attacks of short duration would not lead the physician to suspect typhoid fever.

The following case history illustrates a most unusual finding—a positive blood culture which persisted for two weeks after the patient was afebrile and apparently well.

J. C., aged 5 years, was admitted because of pain about the jaw and throat for two weeks. In addition, there had been some drowsiness and vague abdominal pain. For five days he had had a fever and had been somewhat irrational. Physical examination showed an acutely ill, delirious child who was muttering incoherently most of the time. The skin was hot and dry. The lips were fissured and bleeding. The tongue was coated. The tonsils were large and infected. There was definite ankle clonus and a bilaterally positive Babinski sign. Eberthella typhosa was present in blood cultures on the fifth, twenty-ninth, and thirty-sixth days. The temperature reached normal on the fortieth day and remained so. However, blood cultures were positive on the fortieth, forty-seventh, and fifty-third days. The last positive culture was fourteen days after the temperature reached normal; thereafter, cultures were negative. During these fourteen days the child was perfectly well and gained five pounds in weight. Stool and urine cultures were consistently negative. The Widal test was positive in a dilution of 1:640 on the twentieth day and 1:160 on the thirty-second and thirty-ninth days. It was negative immediately after the child's temperature reached normal, but was again positive in a dilution of 1:160 on the forty-ninth day. The white cell count on the fourteenth day was 10,300, with a slight predominance of lymphocytes. It was 6,600 in the third week and fluctuated between 6,500 and 12,000 until convalescence was complete.

Summary

1. Forty-six cases of typhoid fever occurring in children are reported.

2. Thirty of the 46 patients were 6 years of age or less, while 10 were under 2 years of age.

3. The most important symptoms were prolonged fever without demonstrable cause, headache, and disturbances of the sensorium.

4. Common physical findings were fever, abdominal distention, abdominal tenderness and evidence of respiratory infection.

5. The duration of the disease was twenty-one days in children under 2 years, and increased progressively to thirty-two days in those from 6 to 14 years.

6. Blood cultures were positive in 23 of 36 patients. The Widal was positive in 26 of 41 patients who were repeatedly tested. Stool cultures were positive in 19 of 38 patients, while 3 of 20 patients had positive urine cultures.

7. The total leukocyte count varied from 4,000 to 21,000, more than half of the patients having a count above 7,000. There was a tendency for a slightly lower count as the disease progressed. Polymorphonuclear predominance early in the disease was usually followed by a moderate lymphocytosis.

8. Several cases are described in detail: one in which blood cultures were positive two weeks after defervescence; another of six days' duration in an infant of 3 months; and a third with recurrent attacks of fever of three to four days' duration over a period of four months.

9. The importance of routine immunization to typhoid early in the second year is stressed.

Abstract of Discussion

Dr. R. B. Lawson (Winston-Salem): I would like to ask Dr. McBryde what his technique of immunization is at the present time.

Dr. D. E. Robinson (Burlington): I would like to ask whether there was a great deal of difference in the severity of the case according to age.

Dr. C. A. Street (Winston-Salem): I want to know what he thinks about oral toxin.

Dr. McBryde: As for Dr. Robinson's inquiry as to the severity of the disease in relation to age, I don't believe we have enough cases to answer that. The general supposition is that typhoid fever is a little less severe and a little shorter in the young child. We have had two deaths in 46 cases, which is about the average mortality in reports on typhoid.

A great deal has been written about oral vaccine. Personally I don't believe it is worth anything. Dr. David H. Fogel and Dr. D. W. Martin at Duke, in a study made on some medical students, could not find that they had gained any immunity by taking oral vaccine.

The usual method of immunization is to use about a half dose for infants, gradually increasing it to the adult dose as they grow older. I use the triple vaccine rather than the straight vaccine. The booster dose is the method of choice to keep up the immunity in children.

Dr. W. E. Keiter (Kinston): Why do you cut the dose?

Dr. McBryde: My experience is that typhoid hits a child harder than any other vaccine.

A Member: Dr. McBryde, you said that some of the patients were vaccinated after they were exposed. What would be the effect if they received typhoid vaccine intravenously? Have you had any experience in that?

Dr. McBryde: I cannot tell you about the effect of intravenous typhoid vaccine at that stage, but we believe that intravenous administration does not give the immunity that subcutaneous administration gives.

SOME COMMON DISEASES OF THE EXTERNAL EAR

A. J. Ellington, M.D.

Burlington

This subject sounds very elementary—and it is. My reason for discussing these conditions is two-fold: First, they are so extremely common, and second, there is such a diversity of opinion concerning their treatment. I have had no experience with x-ray therapy, which some men have found to be very helpful.

There are four common types of external ear diseases: (1) eczema, (2) diffuse infection of the canal, (3) generalized infection of the entire ear and structures adjacent to the ear, (4) localized infection or furunculosis of the canal. Two or more of these groups may blend into each other.

Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

Eczema

The first type, eczema, is a most troublesome condition. We see it daily, and the lesions range from a few scales in the canal to a massive involvement of the whole ear, with or without discharge. Symptoms vary from a slight itching to intense pain. The etiology is attributed to allergy, general debility, bacterial or chemical irritation, and the pernicious practice of picking the ear. Treatment of eczematous conditions obviously begins with the elimination of the cause, if possible. Relief of symptoms may be obtained with analgesics and soothing applications. If we do not get results from ultraviolet radiation and various ointments such as phenol in zinc oxide and oil of cade, white tar, phenol in glycerine, or the proprietary ointments such as lenigallol zinc ointment, or otamma, we refer the patient to an allergist or a dermatologist.

Diffuse Infections of the Canal

The second group of cases, comprising the diffuse infections of the canal, are usually seen when the walls are swollen tight and the patient is in great pain, nervous and jittery from self-administered "dope" and crying for quick relief. The cause may be a middle ear discharge, picking the ear to remove wax, or some other injury. Frequently no cause can be found. The infection may be complicated by a secondary fungus growth, especially if there is a chronic condition.

The treatment of these diffuse infections calls for relief of pain with hot applications and analgesics, and often a narcotic. We employ a light pack of the canal to keep the walls apart in order to relieve pain and combat infection. In the past, we have used packs of alcohol, phenol in glycerine, ichthyol, ammoniated mercury ointment, auralgan, and a benzocaine solution such as otolgesic liquid or otalgic drops. (The last three are proprietary preparations.) Recently we have been using the more modern sulfonamide drug ointments and solutions. In cases where fungi are found or suspected, we use cresatin with 1 per cent thymol, or 2 per cent salicylic acid in alcohol. Sulzberger boric acid-iodine powder is very useful in a canal infection complicated by otitis media. However, it is necessary to have a large drum perforation, so that the canal and

middle ear can be thoroughly cleaned before using the powder. Although many good men do not advocate the procedure, we frequently get quick relief with incision and drainage. It requires a careful examination and our best judgment to decide when and where to use the scalpel in diffuse infections of the canal. An aspiration needle, for diagnosis, is a great help. The oral administration of sulfathiazole or sulfadiazine seems to shorten the attack.

To illustrate the variability of ear infections, I will summarize two similar cases.

Case 1. A patient from another city, with a recurrent canal infection, said that her otologist had recently treated her ear successfully without operation. She stated that her doctor remarked that he never incised an ear canal. Since she had recovered from the former attack without operation, we decided to try medical treatment. After a week of treatment and observation, the patient was still suffering intensely. An incision was made behind and below the ear and extending into the canal. Over half an ounce of pus was evacuated.

Case 2. A few days later another very similar case was treated with packs, compresses, and sulfadiazine, without relief, and we decided to make an incision over a prominent swelling in the same location as the incision in Case 1. In contrast with the first case no pus at all was found. The patient began to improve, however, and the condition cleared up promptly. Whether the incision promoted recovery or the sulfadiazine had a belated effect is a debatable question.

Generalized Infection of the Entire Ear and Surrounding Structures

The third group, cases of generalized involvement of the whole ear which usually extends to structures beyond, have about the same etiology and require the same management as the diffuse canal infections. Not only are skin and soft tissues involved, but perichondrium as well. The condition that should always be considered in a massive swelling of the ear is erysipelas. In erysipelas, relief comes quickly with adequate doses of sulfadiazine.

Furunculosis of the Canal

The fourth and most common group of ear infections are the cases of furunculosis of the canal. Localized infection of the canal may be caused by attempts to remove wax or satisfy itching with a toothpick or other object. Furuncles may be superimposed upon middle ear disease or eczema of the external auditory meatus. Frequently, as with boils on other parts of the body, no cause can be found. A mixture of wax and sea water or swimming pool water, and the use of a match stick to remove it account for a good deal of external ear trouble. Debilitating diseases such as diabetes, anemia, or avitaminosis may be predisposing causes.

Furuncles of the canal develop in the sebaceous or ceruminous glands or in the hair follicles, and always appear in the outer two-thirds of the canal, which is the location of these glands and follicles. Boils of the canal may come in crops and are frequently recurrent.

Differentiation between a real mastoiditis and furunculosis accompanied with swelling and tenderness over the mastoid may be difficult. In mastoiditis, there is a history of acute otitis media, profuse discharge, and extreme tenderness upon pressure over the mastoid tip and antrum, while in furunculosis there is swelling of the outer two-thirds of the canal, little or no discharge, and pain upon pulling or lifting the ear. Frequently the furuncle is visible. If the diagnosis cannot be made after a careful examination and history, two or three days' observation will usually make the diagnosis apparent.

The treatment of furunculosis consists in elimination of the local causes and in the proper care of predisposing systemic conditions. If the patient is seen early, an attempt may be made to abort the boil with local applications of antiseptics and heat. Pain may be sufficient to require a narcotic. After two or three days, if treatment has not relieved the condition, free incision usually becomes necessary. Some patients will tolerate incision under local anesthesia if the furuncle is near the entrance of the canal and well localized, but it is usually best to give a light general anesthetic.

In conclusion, it might be well to reiterate that diseases of the external ear are frequent and painful, and at times require keen judgment and resourcefulness for their diagnosis and treatment.

Technique over reason.—It is now possible to remove entire cerebral lobes with survival of the patient, vet too often these feats are but the barren triumphs of technique over reason.—F.M.R. Walshe: Diseases of the Nervous System, ed. 2, Baltimore, Williams and Wilkins, 1941, p. 72.

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NOVEMBER, 1943

A GOVERNOR'S VIEWS ON CENTRALIZATION OF AUTHORITY

A former governor of New York made the statement that " 'the preservation of . . . home rule by the States is not a cry of jealous Commonwealths seeking their own aggrandizement at the expense of sister States. It is a fundamental necessity if we are to remain a truly united country.' He went further and spoke of the 'present dangerous tendency to forget a fundamental of American democracy, which rests on the right of a locality to manage its own local affairs, the tendency to encourage concentration of power at the top of a governmental structure, alien to our system and more closely akin to a dictatorship or the central committee of a communist regime . . . We have met difficulties before this, and have solved them in accordance with the basic theories of a representative democracy. Let us not at this time pursue the easy road of centralization of authority, lest some day we discover too late that our liberties have disappeared.' "[1]

This governor, gentle reader, was Franklin D. Roosevelt[2]. And how right he was!

1. Wriston, Henry M. Challenge to Freedom. New York, Harper & Brothers, 1943, p. 110.
2. New York Times, March 5, 1930; January 2, 1931.

* * * *

A LAYMAN LOOKS AT POLITICAL MEDICINE

Mr. John Wesley Clay is Winston-Salem's Will Rogers. His syndicated column, "My Notions", had its origin in an advertisement of his printing establishment. So many people read his advertisement regularly and commented on it that he was asked to become a regular contributor to the *Winston-Salem Journal* and other daily papers. "My Notions" is perhaps read and quoted by more people than any other feature of the *Journal*.

On November 3 Mr. Clay paid a tribute to the medical profession, which is here, by the author's permission, reproduced in full.

My Notions
By John Wesley Clay

We do not like this new system of "socialized medicine" they are considering up in Washington. As we understand it they want to appoint government doctors (often political appointees) to look after us when we are sick.

Shucks, we like our true and tried system that has stood the test since America was young. We want our "family doctor," the doctor of our choice. 'Course we do not want to have to call any doctor, but when we do need a doctor we want a doctor who knows us and is interested in us personally, and above all we want a doctor of our choice.

Now if the medical profession had fallen down on the job there would be some reason for government appointed doctors, but the fact is that no profession has been more wide awake, progressive, and up-to-the-minute than the American medical profession.

There are two things that we desire for our native land, yea three, an unbridled press, an unhampered ministry, and a medical profession unblighted by political influence.

A SYNDROME SIMULATING ACUTE APPENDICITIS

During the past year physicians have encountered with increasing frequency a syndrome which simulates acute appendicitis, but in which no inflammation of the appendix is found at operation. Such patients look acutely ill; the face is brick-red; the conjunctivae are injected; and frequently the mucosa of the pharynx is red and inflamed. The appetite is impaired and the patient is drowsy. Accompanying these symptoms of generalized infection there is abdominal pain, sometimes generalized or peri-umbilical, but often localized to the right inferior quadrant, with more or less spastic reaction of the abdominal muscles. As a rule fever of varying grade is present, and it is sometimes quite high. The tentative diagnosis of acute appendicitis is fully justifiable. However, the leukocyte count is normal, or low, and the differential count does not show a "shift to the left".

The etiology of the syndrome is obscure, but one gains the impression that it is due to a virus infection, possibly of the nature of a "perityphlitis", with the respiratory tract serving as the portal of entry. The recognition and proper evaluation of this syndrome obviously are of great import, for it introduces an element of confusion into the vitally important differential diagnosis of acute appendicitis.

Very recently Butsch and Harberson[1] have reported their observations upon 50 cases of this pseudo-appendicitis syndrome, occurring in young soldiers. They point out that the onset is abrupt, with sharp abdominal pain, nausea and vomiting in the first few hours, flushed face, and inflamed soft palate, without soreness of the throat. Fever was irregular in occurrence and there was no leukocytosis or "shift to the left".

The authors believe that the syndrome is of virus origin, and they think that the abdominal pain is due to "involvement of sensory nerve roots", although neither of these assumptions seems very well grounded. No herpetic manifestations were observed. However, the etiology of the syndrome is of less importance than its recognition clinically, since it introduces a distinct element of uncertainty into the diagnosis of acute appendicitis.

1. Butsch, Capt. Winfield L. and Harberson, Lt. Col. James C.: Acute Virus Infection with Nerve Root Involvement Simulating Appendicitis, J.A.M.A. 123:405-407 (Oct. 16) 1943.

THE INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION

The twenty-eighth Annual Meeting of the Inter-State Postgraduate Medical Association of North America was held at the Palmer House in Chicago October 26-29. More than 3500 doctors were registered. Most of those in attendance were from the Midwest, but there were both speakers and visitors from all sections of the United States and from Canada. The retiring president was Dr. Frank Lahey of Boston, and he was succeeded by Dr. Fred Rankin, who is a son of North Carolina. The managing director is Dr. Arthur G. Sullivan of Madison, Wisconsin.

This meeting was unique in many ways. It was just what its name implies—a postgraduate course. Approximately 85 per cent of those in attendance were general practitioners. The program was arranged with their needs in mind, and the clinics and addresses were, for the most part, up to the minute. There were more than sixty addresses and diagnostic clinics packed into the four days of the assembly. Although they covered a wide range of subjects, there was no division of the membership into sections. The huge ballroom of the Palmer House was crowded to the limit most of the time, and apparently the audience was interested in the variety of topics presented.

On Thursday evening there was held the annual Assembly Dinner, featured by addresses on various war themes. The speakers were Dr. Lahey, Dr. Rankin, and Mr. Graham Hutton, Director of British Information Services, London.

There were a number of noteworthy features of this assembly. One was the clock-like precision with which it was run. Each day's session began exactly at 8 o'clock and continued until 9:30 or 10 p.m., with intermissions of an hour and a half for lunch and dinner. Each participant was given exactly thirty minutes for his presentation, and no partiality was shown—not even to the Surgeon General of the Army. Midway the morning and afternoon sessions there were intermissions of an hour to allow a review of the exhibits. These served the double purpose of giving the audience a chance to relax, and providing an opportunity for everyone to see both the scientific and the commercial exhibits without missing any of the program.

The careful selection of subjects for discussion, the precision with which the schedule was adhered to, and the minute care with which all details were arranged make the Inter-State Postgraduate Medical Association a model for any medical gathering to study.

* * * *

DR. OSCAR L. McFADYEN, SR.

When Dr. Roscoe McMillan was organizing the symposium on the county medical society for the Officers' Breakfast at the State Meeting last May, it was almost inevitable that he should have selected, to speak on "The Functions of a County Medical Society Secretary", Dr. Oscar L. McFadyen, Sr., of Fayetteville. For twenty years Dr. McFadyen had served as secretary of the Cumberland County and Fifth District Medical Societies. So successful had he been that the Cumberland County Society has long ranked as one of the model societies of the state. Anyone who may think that this "just happened" is referred to the July issue of the NORTH CAROLINA MEDICAL JOURNAL, in which Dr. McFadyen's article reveals how conscientiously and how intelligently he carried out his duties as secretary.

Death came suddenly to Dr. McFadyen; and those who knew him, and knew how he loved life, feel that he would have had it so. He would not have wanted to exist as an invalid. He will be sorely missed; for it is hard to visualize a meeting of county, district or state society without him. Let every reader of this JOURNAL get the July issue, and read again Dr. McFadyen's ideals for a county society; then resolve to do his best to make them apply to his own society.

* * * *

DR. MacNIDER RETIRES FROM TEACHING

On August 31 Dr. William deB. MacNider ended his official teaching career, which began forty-four years ago when he was made an instructor in biology at the University of North Carolina. This does not mean that he will no longer be connected with the University, for he will continue to be the Kenan Research Professor of Pharmacology. His research has made him an international authority on the kidney, and has brought him numerous honors from various sources.

It is fitting that he should have been made a member of the American Philosophical Society, for he has become one of the medical philosophers of our state and nation. It can be said with truth that Bill MacNider is one of North Carolina's brightest ornaments; yet the tribute which would be most appreciated by him is the one which the editor of the *Chapel Hill Weekly* paid him when he said: "The question that has always interested me most about Will MacNider has nothing to do with what he finds out from his microscopes and slides and cultures. It is: How does he manage to get around to help so many folks that are sick or otherwise in trouble?"

Although he has retired from the teaching profession, Bill MacNider will be a real teacher as long as he lives. North Carolina is proud of him, and his legion of friends, both medical and lay, wish for him many years of usefulness.

* * * *

DR. JAMES WATSON GOES TO ILLINOIS

A simple announcement on a postal card was received with real regret in the office of the NORTH CAROLINA MEDICAL JOURNAL. This announcement read: "Beginning with December 1, 1943, the address of Dr. Watson will be changed from Raleigh, North Carolina, to:

JAMES WATSON, M.D.
CHIEF MEDICAL OFFICER
DEPARTMENT OF PUBLIC WELFARE
176 WEST ADAMS STREET
CHICAGO 3, ILLINOIS"

This new position is in the nature of a flattering promotion, and is a deserved tribute to Dr. Watson's ability. Nevertheless, the many friends that he has made during his three-year stay in North Carolina, as Director of the Division of Mental Hygiene of the State Board of Charities and Public Welfare, will miss him for many years to come. He is not only an able psychiatrist; he is a cultured, genial, lovable gentleman, whose personality has literally endeared him to those privileged to know him. As you take up your abode in Chicago, Dr. Watson, the best wishes of the NORTH CAROLINA MEDICAL JOURNAL and of the medical profession of North Carolina will go with you. And in the vernacular of our state, remember that whenever you can find time to visit us the latch string will be hanging low for you.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

DUKE HOSPITAL

Presentation of Case

DR. CHRISTOPHER JOHNSTON: This white housewife, aged 38 years, was admitted September 29, 1943, with the chief complaint of heart trouble for fourteen years. The family history was not contributory. Her general health was said to have been good and the only positive finding in her past history was that she had frequent epistaxis as a child, but had had only three attacks in the past ten years.

When she was 24 she developed acute migratory polyarthritis and a "leaking heart". One year later she had an episode of weakness and epigastric fullness which apparently was completely relieved by digitalis and two weeks' bed rest. Ten years ago she married, and about one year later was delivered of a viable infant. Because of the heart trouble she remained in bed during the greater part of her pregnancy. Three months after delivery she again had an episode of weakness and was again treated with digitalis, responding satisfactorily in about two weeks. She continued to have these episodes at intervals of about one year, each more severe than the previous one. She began to have shortness of breath, abdominal swelling and some edema of the ankles. Four years ago, because of her condition, pregnancy was interrupted at one month, and two years ago another pregnancy was interrupted at about seven months. Eight weeks before admission she began to have more marked dyspnea and generalized edema. She was put to bed and given digitalis in doses of 25 drops, three times daily for one or two weeks, until she became nauseated. The dose was then changed to 15 drops daily, which she has continued to take without relief.

Physical Examination: The temperature was 37 C., the pulse 52, respirations 20, and blood pressure 130 systolic, 84 diastolic. The patient was obviously ill, with generalized pitting edema, ascites and some puffiness of the eyelids. The pupillary responses were normal and examination of the optic fundi revealed no changes. The teeth were dirty and worn; the tonsils atrophic and small. There were inspiratory moist rales over both lung fields.

The apex thrust of the heart was in the anterior axillary line. The rhythm was totally irregular and there were rather frequent premature beats, at times giving rise to bigeminal rhythm. Over the apex was a systolic murmur and a late diastolic murmur; the second sound over the second interspace was greatly accentuated. The liver was felt about 5 cm. below the right costal margin. Pelvic examination revealed nothing remarkable.

The hemoglobin was 13 Gm., or 84 per cent. There were 4,200,000 red blood cells and 11,000 white blood cells, with a normal differential count. The sedimentation rate was 14 mm. in an hour. The blood Kahn and Kline reactions were negative. Examination of the urine revealed a specific gravity of 1.022, an acid reaction, no sugar or albumin, and 10-20 white blood cells per high powered field, with an occasional hyaline cast. An electrocardiogram showed a rate of 110 with auricular fibrillation interrupted by bigeminal rhythm and runs of ventricular premature beats. There was a right axis deviation and the T waves were inverted in leads 2 and 3, with depressed ST segments in these leads.

Course in the hospital: Members of the house staff felt that the patient was overdigitalized. She was started on a cardiac, soft, salt-free diet, with fluids limited to 1,000 cc. daily, and was given enteric coated aminophyllin, 0.2 Gm. three times a day. On the second day she seemed rather restless and occasionally complained of dyspnea. On the third day she was given 1 cc. of salyrgan and was started on constant nasal oxygen because of cyanosis. The following day the urinary output was 2600 cc. The patient was still rather dyspneic. She vomited twice in the morning and brought up a few bloody clots. The dyspnea was thought to be somewhat improved, but she remained cyanotic, and on the fifth day the vomiting continued and the cyanosis increased. At 2:30 a.m. on the sixth day the house officer was called because the patient was gasping for breath, after waking from a quiet sleep. The patient had expired before the house officer arrived.

Discussion

DR. JOHNSTON: One unusual feature of this case is the apparent late age of onset, for

rheumatic fever usually does not cause severe myocardial or endocardial damage when the first attack occurs beyond the age of 20 years. On the other hand, the past history revealed that the patient had frequent epistaxis as a child, and it is quite likely that she had an active rheumatic process at that time, with cardiac damage, which passed unnoticed until the severe attack of rheumatism at the age of 24. Unfortunately, the patient was so ill as to preclude x-ray examination. With the clinical evidence as presented, the history of epistaxis in childhood, the definite acute attack of rheumatic fever at 24, and the subsequent course of events, the only possible diagnosis here is that of rheumatic heart disease with mitral stenosis. The termination seems typical of digitalis intoxication with increased ventricular irritability, resulting in numerous ventricular premature beats and finally terminating in systolic arrest of the heart.

DR. HENDRIX: In connection with the digitalis intoxication, it may be of some importance that this patient had a diuresis on the fourth hospital day. When such a diuresis takes place, digitalis, which is evenly distributed in the excess body fluids, is once more diverted to the circulation and re-distributed, thereby increasing the digitalis effect upon the heart. I think it would be just as well, therefore, to avoid giving diuretics to patients exhibiting signs of digitalis intoxication.

Pathological Discussion

DR. GEORGE MARGOLIS: The changes in the heart were so characteristic of patent interauricular septum associated with mitral stenosis (Lutembacher's syndrome)[1] that Dr. Baylin was able to recognize the condition when he saw the heart *in situ* at the autopsy table. The transverse diameter of the heart was almost two-thirds that of the thoracic cavity. There was a moderate compression atelectasis of both lungs, but only a slight shift of the heart to the left. The cardiac enlargement was the result of a pronounced dilatation and a moderate hypertrophy of all chambers except the left ventricle. The pulmonary conus was dilated to one and one-half times the size of the rather small ascending aorta. There was an interauricular septal defect measuring 3 x 1 cm. The mitral valve was scarred, so that it was functionally both insufficient and stenotic. The tricuspid valve was also scarred, but not functionally altered. Thrombi were found in the right auricle, and a few pulmonary infarcts had recently occurred. There was chronic passive congestion of the viscera, and considerable excess fluid was present in the body cavities.

Although Lutembacher[2] interpreted the mitral stenosis as a congenital lesion, it is now considered to be of rheumatic origin. In the case under consideration the valvular lesions were typical of healed rheumatic endocarditis.

The circulatory dynamics in the presence of an interauricular septal defect are of interest. The dilatation and hypertrophy of the right side of the heart and the enlargement of the pulmonary conus are the result of the shunting of blood from left to right through the defect. The usual explanation[3] for the shunting of blood is that the left auricular pressure is greater than the right. The presence of a mitral lesion produces a considerable increase in the shunt, depending upon the degree of obstruction.

In Lutembacher's syndrome one would not expect to find the left auricular dilatation which is so characteristic of mitral stenosis, since the septal defect would act as a safety valve for the residual blood in the left auricle. However, Dr. Baylin[1] has described dilatation of the left auricle as common, and it was present in this case. This dilatation is due to right sided cardiac failure, the pressure rising in the right auricle to the point where there is a reversal of the direction of the shunt. The passage of unoxygenated blood from right to left, through the defect, may be correlated with the appearance of the "cynanose tardive" that is observed in this syndrome.

Anatomical Diagnosis

(Lutembacher's syndrome)
Patent interauricular septum
Dilatation of the pulmonary conus

1. Baylin, George J.: Patent Interauricular Septum Associated With Mitral Stenosis: Lutembacher's Syndrome. Radiology 38:1-6 (Jan.) 1942.
2. Lutembacher, R.: De la stenose mitrale avec communication interauriculaire. Arch. d. mal. du coeur 9:237 (June) 1916.
3. (a) McGinn, S. and White, P. D.: Interauricular Septal Defect Associated With Mitral Stenosis. Am. Heart J. 9:1-13 (Oct.) 1933.
   (b) Roesler, H.: Interatrial Septal Defect. Arch. Int. Med. 54:359-380 (Sept.) 1934.

Old healed rheumatic endocarditis of the mitral and tricuspid valves, with mitral insufficiency and stenosis
Thrombi in the right auricle
Recent pulmonary infarcts
Chronic passive congestion of the viscera.

DR. GEORGE BAYLIN: This patient, as the autopsy revealed, suffered from patent interauricular septum associated with mitral stenosis—the so-called *Lutembacher's syndrome*. Unfortunately, she was so ill that roentgen studies were not done. However, we have recorded two similar instances of the syndrome[1]. The roentgen findings are so characteristic as to be diagnostic of the condition.

The huge hilar shadows, which fluoroscopically show marked pulsations, are the most important features. However, the prominent left pulmonary artery that is displaced upward is also a constant finding. Barium studies reveal the characteristic posterior deviation so constant in patients with enlargement of the left auricle.

Although the antero-posterior film is usually adequate for diagnosis, fluoroscopy is more reliable; for then the enlargement of both auricles and of the right ventricle can be readily demonstrated. The aorta is usually normal in size, or actually smaller than normal. The changes in the heart are such that the left bronchus and left lung are frequently so compressed that atelectasis ensues, resulting in some shift of the heart to the left.

In an interpretation of the roentgen picture it is most important to recognize the bizarre shadows as part of the cardiovascular system rather than pulmonary or hilar masses.

Importance of ventilation in preventing air-borne infections.—If the concentration of the pathogenic material in the air can be kept below a certain critical level, infection only seldom occurs, i.e., the dosage of inhaled pathogens is not sufficient to cause disease—although infection may occur if the dosage is increased by prolonged inhalation of even a small concentration of the infectious agent. Thus any measure which will sufficiently lower the concentration of an air-borne infectious agent should be effective in reducing or eliminating infection. The means which has been most commonly employed for this purpose is ventilation. If a sufficient number of air changes per hour can be secured, the building up of a high concentration of any infectious agent can be prevented.—Robertson, O. H.: Air-Borne Infection, Science 97:498 (June 4) 1943.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Workmen's compensation: Disfigurement is not compensable unless it be so permanent and serious as to hamper or handicap the person in his earning or in securing employment.

Frequently the question of disfigurement enters into cases heard before our Industrial Commission and courts, and this case is being offered in order to give the prevailing rule with regard to the disposition of suits of this kind.

In this particular case an employee sustained an injury to his back while he was assisting in loading a box car. There was some disfigurement, the exact location of which is not given, and it is stated that the injury will probably prevent his being able to do heavy manual labor for life. He returned to his job after the statutory period of seven days, and the company which employed him continued to pay his usual salary but, of course, arranged for him to have lighter work. The claimant, although receiving full wages, sought compensation before the Industrial Commission so that this body might continue to have jurisdiction over his case. It should be stated in this connection that this protected the employee against the possibility that the employer might after the expiration of twelve months discontinue the employment. The Commission held that the injury to the claimant's back was compensable, but failed to award compensation for the disfigurement which resulted from the accident. The compensation was to be in force from the date of the accident, April 26, 1940, for a period of three hundred weeks, less the time that he had been paid full wages. There were also certain recommendations as to medical and hospital expenses. The claimant, being dissatisfied with the findings of the Industrial Commission, appealed to the Superior Court.

When the case came on to be heard, the Judge, being of the opinion that the full Commission was in error in directing the award as above quoted, and that no award for compensation could be made at that time in view of the facts submitted, ordered the said award stricken and remanded the cause to the full Commission. The plaintiff excepted and appealed to the Supreme Court.

The Appellate Court felt that the recommendations and award made by the Industrial Commission in the first instance should be sustained. The Supreme Court was of the opinion that compensation for disfigurement was not required by the Compensation Act, its allowance or disallowance being within the legal discretion of the Commission. Furthermore, from the evidence, it was not made to appear that the claimant had sustained disfigurement within the provisions of the statute. Disfigurement, according to the court, is a blemish, a blot, a scar or mutilation that is external and observable, marring the appearance. The words, "facial", "head", "body" and "member or organ" are used in connection with the term disfigurement. There must be an outward observable blemish, scar or mutilation which tends to mar the appearance of the body, and under the express terms of the Act it must be serious. For instance, the puncture of an ear drum or the removal of a kidney would result in injury, perhaps serious, but there would be no disfigurement.

In another case of a similar nature it has been

held as follows: "To warrant compensation for disfigurement it must be so permanent and serious that it, in some manner, hampers or handicaps the person in his earning or in securing employment, or it must be such as to make the person repulsive to other people." Therefore the Supreme Court was of the opinion that the award made by the Industrial Commission was correct, being based upon the above precedent. As a consequence the conclusions and awards of the Industrial Commission were affirmed without qualification. (North Carolina Supreme Court Reports. Vol. 223, page 233. Decision rendered Spring term, 1943.)

CORRESPONDENCE

Hamlet, N. C.
Oct. 18, 1943

North Carolina Medical Journal
Winston-Salem, N. C.

Several times a month we receive letters from New York like the one enclosed. The Board of Medical Examiners of North Carolina has successfully kept this undesirable type of doctor out of North Carolina, in spite of pressure on the Board from New York and North Carolina attorneys. You may print this letter to keep the profession in North Carolina informed if you care to.

Yours very truly,
W. D. JAMES, M.D.
Secretary, Board of Medical Examiners of North Carolina

October 1, 1943

To the Secretaries of the
State Boards of Medical Examiners

Gentlemen:

This is to advise you that evidence having been presented that Henry Katz, New York, has been convicted of a felony, the Board of Regents at its meeting held September 17, 1943,

VOTED, That pursuant to the provisions of subdivision 1 of section 1264 of the Education Law, medical license No. 13325, issued under date of June 30, 1916, to Henry Katz, permitting him to practice medicine in the State of New York, be revoked, annulled and canceled, and that his registration or registrations as a physician, wherever they may appear, be ordered annulled and canceled of record; and that the Commissioner of Education be empowered and directed to execute, for and on behalf of the Board of Regents, all orders necessary to carry out the terms of this vote.

Doctor Katz was last registered for the year 1942 from 1005 Jerome avenue, New York City.

Yours very truly,

ROBERT R. HANNON, M.D., Secretary
New York State Board of Medical Examiners

AMERICAN MEDICAL ASSOCIATION
COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

A Statement of General Policies

Pursuant to carrying out the duties imposed on it by the House of Delegates, the Council has adopted the following general policies:

1. The Council on Medical Service and Public Relations recognizes the desirability of widespread distribution of the benefits of medical science; it encourages evolution in the methods of administering medical care, subject to the basic principles necessary to the maintenance of scientific standards and the quality of the service rendered.

   It is not in the public interest that the removal of economic barriers to medical science should be utilized as a subterfuge to overturn the whole order of medical practice. Removal of economic barriers should be an object in itself.

   It is in the public interest that the standards of medical education be constantly raised, that medical research be constantly increased and that graduate and postgraduate medical education be energetically developed. Curative medicine, preventive medicine, public health medicine, research medicine, and medical education, all are indispensable factors in promoting the health, comfort and happiness of the nation.
2. The Council through its executive committee and secretary shall analyze proposed legislation affecting medical service. Its officers are instructed to provide advice to the various state medical organizations as well as to legislative committees concerning the effects of the proposed legislation. It shall likewise be the duty of its officers to offer constructive suggestions to bureaus and legislative committees on the subject of medical service.
3. The Council approves the principle of voluntary hospital insurance programs but disapproves the inclusion of medical services in those contracts for the reasons adopted by the House of Delegates at the 1943 meeting.
4. The Council approves voluntary prepayment medical service under the control of state and county medical societies in accordance with the principles adopted by

the House of Delegates in 1938. The medical profession has always been very much opposed to compulsory health insurance because (1) it does not reach the unemployed class, (2) it results in a bureaucratic control of medicine, and interposes a third party between the physician and the patient, (3) it results in mass medicine which is neither art nor science, (4) it is inordinately expensive, and (5) regulations, red tape and interference render good medical care impossible. Propaganda to the contrary notwithstanding, organized medicine in general, and the American Medical Association in particular have never opposed group medicine, prepayment or non-prepayment, as such. The American Medical Association and the medical profession as a whole have opposed any scheme which on the face of it renders good medical care impossible. That group medicine has not been opposed as such is evidenced by the fact that there are many groups operating in the United States which have the approval of the medical profession, and members of these groups are and have been officials in the national and state medical organizations. That group medicine is the Utopia for the whole population, however, is not probable. It may be and possibly is the answer for certain communities and certain industrial groups if the medical groups are so organized and operated as to deliver good medical care.

5. The Council believes that many emergency measures now in force should cease following the end of hostilities.
6. The Council believes that the medical profession should attempt to establish the most cordial relationships possible with allied professions.
7. There is no official affiliation between the American Medical Association and the National Physicians Committee. However, since it is the purpose of the National Physicians Committee to enlighten the public concerning contributions which American medicine has made and is making in behalf of the individual and the nation as a whole, it is the opinion of the Council that the medical profession may well support the activities of the National Physicians Committee and other organizations of like aims.
8. American medicine and this Council owe a responsibility to our colleagues who are making personal sacrifices to answer the call of the armed forces. Therefore, the Council expresses the desire to cooperate with the medical committee on post-war planning in order to assist our colleagues in reestablishing themselves in the practice of medicine, and in the preservation of the American system of medicine.

BULLETIN BOARD

IMPORTANT NOTICE!

To County Society Secretaries:

Within the next week or two we will mail from this office your 1944 Annual Report Blanks. They should reach you in ample time for your annual "election-of-officers" meeting. In this connection, I should like to remind you:

1. The Ninetieth Session of the House of Delegates increased annual dues of the Society from $8.00 to $10.00 to begin January 1, 1944. This increase is for the duration and for six months thereafter, to counterbalance the waiving of dues of fellows with the Armed Forces.
2. When listing your officers and members please state Specialty.
3. Give complete information for any new members. If transferees from other County Societies, please indicate.
4. List all Fellows in Service.
5. Be sure to give the names of your Delegates to the State Society meeting.
6. Make all checks payable to Medical Society of the State of North Carolina.
7. Be sure to get your reports in by March 1 or as soon thereafter as possible.

Roscoe D. McMillan, M.D.
Secretary-Treasurer

News Notes From the North Carolina Tuberculosis Association

Dr. Julian S. Miller, editor of the **Charlotte Observer**, has been chosen for the state chairman of the 1943 Christmas Seal Sale campaign.

* * * *

To The People of North Carolina

The North Carolina Tuberculosis Association joins in the nation-wide annual sale of Christmas Seals again this year, the campaign dates covering the period between November 22 and Christmas Day.

Christmas Seals build guard-rails around the top of the precipice instead of equipping ambulances to be rushed to the foot of the chasm to pick up the fallen victims. They provide and finance a program of prevention of tuberculosis which killed 60,000 people in this country last year and is still the greatest fatal scourge of persons between 15 and 45. They represent an effective form of personal insurance in which all of us can participate for our individual defenses against the subtle and insidious threats of this menacing disease.

As State Chairman for this year's campaign, I urge our people to keep this cause in their keen remembrance and to reserve an appropriate place for its appeal in their Christmas plans and pledges.

Sincerely yours,

Julian S. Miller

* * * *

The Executive Committee of the North Carolina Tuberculosis Association met in Raleigh on October 8. The following members were present: Dr. R. L. Carlton, president; Mrs. Marie B. Noell, secretary; Dr. J. J. Combs, treasurer; Dr. M. D. Bonner and Dr. P. P. McCain. Dr. Derwin Cooper served as proxy for Dr. David T. Smith.

Walter Wenkert, of the National office discussed the rehabilitation problem in North Carolina. Dr. Carlton appointed a committee from the state board of directors to study this situation further. This committee was: Dr. M. D. Bonner, chairman; Dr. H. L. Seay, Mrs. Charles E. Platt, Dr. S. M. Bittinger and Dr. Derwin Cooper. This committee will meet later and invite representatives of the State Rehabilitation Service, the North Carolina Employment Service, The Welfare Department, the State Board of Health and other allied agencies to discuss this important phase of tuberculosis control.

The matter of a Negro Health Educator and the possibility of additional workers in the counties were discussed.

News Notes From the State Board of Health

In order to secure manpower to prosecute the war in which we now are engaged, that the dignity of man may not be destroyed, our government has passed what is known as the Selective Service Act, providing for the selection of manpower in the democratic way. First, this Act applied to persons between the ages of 21 and 38. Then it was extended to include boys above 18. Now, it is proposed to draft fathers from among all eligible age groups.

And yet, there remains practically untapped a manpower pool of between 400,000 and 500,000, of whom 30,500 are residents of North Carolina—men who have been rejected for military service because they are infected with syphilis. Although an order was issued providing for their treatment and induction into the armed forces, this is not being done to any appreciable degree, according to Dr. Carl V. Reynolds, North Carolina State Health Officer, who calls attention to the fact that they can be cured, through intensive treatment, in from five to ten days, and made fit for military service.

In June of this year, the State Laboratory of Hygiene, a Division of the North Carolina Board of Health, examined 31,163 specimens for syphilis, of which 2,866 were found to be positive. During that single month, there were 62 specimens examined that had been taken from infants **under one year of age**—and, of that number, 10 were found to be positive. There were 10 positive specimens found among a total of 124 taken from children from one to 4 years old, and 28 among the 277 from children from 5 to 9 years old.

The presence of syphilis among these infants indicates very clearly that one or both of the laws affecting the marital relations of syphilitics are not being enforced. In 1939, the General Assembly of North Carolina passed two very significant acts. One provides that a person desiring to marry must undergo a serological test and if that test is found to be positive there can be no marriage until the infected person has undergone sufficient treatment to become non-infectious. The other provides that **every** pregnant woman, as soon as her pregnancy is discovered, not "may" but "**shall** have a blood sample taken and submitted to a laboratory approved by the North Carolina State Board of Health for performing the Wassermann test or other approved tests for syphilis." Any woman unable to pay a private practitioner for this service may have such blood sample secured by the county health officer, or, if there is none, the county physician of the county in which she resides. Whether a blood test was made during the pregnancy of the mother is required to be shown on the birth certificate of every baby born in North Carolina.

* * * *

There were 100 cases of typhus fever in North Carolina last year, resulting in 10 deaths. In 1941, when there were 78 cases of endemic typhus fever reported to the State Board of Health's Division of Epidemiology, 4 died.

The North Carolina State Board of Health has a typhus control unit, in which rat-extermination plays a leading role. This unit works through local health departments.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

The second series of the Nathalie Gray Bernard Lectureships were held in the amphitheatre of the Bowman Gray School of Medicine on October 26, 27, and 28. Dr. William B. Castle, Professor of Medicine at Harvard University, was guest speaker.

Dr. Castle is widely known in the field of medicine, and has especially made fundamental contributions in his research on anemia. He has also received many awards for distinguished service in the sciences promoting health.

Dr. Castle chose for the subject of his lectures "Some General and Particular Aspects of the Pathological Physiology of Anemias."

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Dr. Tinsley R. Harrison, Professor of Medicine, left on October 27 for California, where he will give a series of lectures on cardiovascular diseases. He will speak to the American Heart Association in Los Angeles, to the Academy of Medicine in San Diego, and to the Stanford University School of Medicine in San Francisco. On his way to California, he stopped at Tuscaloosa, where he gave an address on "Cardiac Dyspnea" at the School of Medicine of the University of Alabama.

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Dr. Wingate M. Johnson, Professor of Clinical Medicine, gave a paper on "The Care of the Aged" before the Inter-State Postgraduate Medical Association of North America in Chicago on October 26.

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Dr. Everett O. Jeffreys, formerly connected with the Jefferson Medical School, has been made Assistant Professor of Surgery in Charge of Neurosurgery at the Bowman Gray School of Medicine. He assumed his new duties in October.

Dr. George T. Harrell, Associate Professor of Preventive Medicine, and Dr. Frank R. Lock, Associate Professor of Obstetrics and Gynecology, attended the meeting of the Association of American Medical Colleges in Cleveland on October 25, 26, and 27.

News Notes From the University of North Carolina School of Medicine

Dr. W. R. Berryhill attended the meeting of the Association of American Medical Colleges in Cleveland the week of October 24, and also the centennial celebration of the founding of the School of Medicine at Western Reserve University.

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The following members of the faculty of the School of Public Health attended the meetings of the American Public Health Association in New York during the week of October 11: Drs. D. F. Milam, H. W. Brown, Wm. L. Fleming, John J. Wright, Lucy S. Morgan, and Professors W. Brewster Snow and Ruth W. Hay. Dr. Milam also attended a Nutrition Conference called by the Nutrition Foundation on October 11 in New York.

Dr. Milam presented a paper "Nutrition Survey of an Entire Rural County in North Carolina", and Dr. Lucy S. Morgan presented a paper on field training in health education.

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The following are new members of the faculty of the School of Public Health: Dr. John J. Hanlon in Public Health Administration and Dr. John E. Larsh, Jr., in Parasitology. Dr. Hanlon was formerly with the Tennessee State Department of Health and Dr. Larsh was at the Johns Hopkins University.

North Carolina Public Health Association

The North Carolina Public Health Association held its Thirty-Third Annual Meeting at Raleigh on October 25 and 26. Among the North Carolina doctors who appeared on the program were Dr. R. E. Fox, Dr. J. Roy Hege, Dr. G. M. Cooper, Dr. R. D. McMillan, Dr. P. P. McCain, Dr. David T. Smith, Dr. W. P. Jacocks, Dr. M. J. Rosenau, Dr. J. H. Hamilton, Dr. G. H. Sumner, Dr. J. W. Vernon, Dr. N. Thomas Ennett, Dr. John Wright, Dr. Merle Carson. The guest speaker was Dr. James K. Hall of Richmond, Virginia, whose subject was "Human Health and the Common Weal".

Officers of the Association for 1942-1943 were Dr. N. Thomas Ennett, President; Dr. William P. Richardson, President-Elect, and Dr. Clem Ham, Secretary-Treasurer.

Ninth District Medical Society

Officers elected at the meeting of the Ninth District Medical Society, held in Statesville on September 30, are Dr. Douglas Hamer, Lenoir, President; Dr. W. Grimes Byerly, Lenoir, Vice President; Dr. Verne Blackwelder, Lenoir, Secretary, and Dr. T. W. Seay, Salisbury, Assistant Secretary. The 1944 annual meeting is to be held at Lenoir.

Medical Society of Virginia

The Medical Society of Virginia held its annual meeting at Roanoke, Virginia, on October 25, 26, and 27. Officers of the Society for 1942-1943 were Dr. J. M. Emmett, President; Dr. C. B. Bowyer, President-Elect; Dr. W. L. Powell, Dr. W. R. Payne, and Dr. P. W. Boyd, Vice Presidents; and Miss Agnes V. Edwards, Executive Secretary-Treasurer.

Forsyth County Medical Society

The Forsyth County Medical Society held its monthly meeting in Winston-Salem on October 12. Dr. Everett O. Jeffreys, recently arrived from Philadelphia to become Assistant Professor of Surgery in charge of Neurosurgery at the Bowman Gray School of Medicine, spoke on "Cranio-Cerebral Trauma".

Dr. Ward Elected to Board of Medical Examiners

Dr. John LaBruce Ward of Asheville has been unanimously elected by the State Board of Medical Examiners to fill the unexpired term of Dr. Lewis W. Elias, who died August 10.

News Notes

Dr. Edmond L. Rice has succeeded Dr. C. L. Haywood as Surgeon-in-Chief at the Hugh Chatham Memorial Hospital, Elkin. Dr. Haywood died of a heart attack in August. Dr. Rice goes to Elkin from the Tayloe Hospital in Washington, N. C.

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North Carolina doctors who are participating in the program of War-Time Graduate Medical Meetings for South Carolina are Dr. Tinsley R. Harrison of the Bowman Gray School of Medicine, Winston-Salem, and Drs. Robert McKay and L. C. Todd of Charlotte. This program began on October 11 and will continue through November 17. Most of the faculty is composed of doctors from South Carolina.

Medical and Surgical Relief Committee of America

To help quiet the convoy-worn nerves of American merchant seamen, the Medical and Surgical Relief Committee of America has donated to the War Shipping Administration 4000 capsules of sedatives requested for use in recuperation centers in England and North Africa, reported Dr. Joseph P. Hoguet, medical director of the Committee.

This recent gift of the Medical and Surgical Relief Committee is but a small part of the $2500 total of medical equipment requested by the War Shipping Administration's Medical Division in New York. To War Shipping Administration representatives serving in various foreign ports, the Committee has donated 16 large emergency medical field sets, at a cost of $140 each. Specially designed by the Committee's medical board, the field set consists of 2 valise-sized cases, for use by doctors for wounded and ill merchant seamen. Its drugs, antiseptics, bandages, sutures, syringes and minor surgery instrument roll equip it for any emergency, Dr. Hoguet pointed out.

Conducted for over three years, the Medical and Surgical Relief Committee is dedicated to supplying medical and surgical aid to the armed and civilian forces of the United Nations. To date, over $572,000 of drugs, instruments, serums, vitamins and other equipment have been distributed to maritime and military units of America and her Allies, to needy hospitals, war-zone welfare agencies and to civilian defense posts throughout the free world. "So far," declared Dr. Hoguet, "not one request from a reputable source has been turned away . . . and our donations have circled the globe."

Third Annual Schering Award Competition

The Third nation-wide competition for the Schering Award is now open. Three major prizes of a total value of $1000.00 will be awarded to undergraduate medical students who submit the best critical dissertations on the subject "Hormones and Cancer". As in previous years, the Judges for the Schering Award will include outstanding American investigators in the fields of endocrinology, medicine and chemistry:

R. G. Hoskins, Director of the Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School; and Editor Emeritus of **Endocrinology** and of the **Journal of Clinical Endocrinology**, official organs of the Association for the study of Internal Secretions.

E. P. McCullagh, Section of Endocrinology and Metabolism, the Cleveland Clinic.

E. C. Hamblen, Associate Professor and Chief of the Endocrine Division, Department of Obstetrics and Gynecology, Duke University School of Medicine.

E. Novak, Associate Professor of Obstetrics, University of Maryland School of Medicine and College of Physicians and Surgeons.

H. M. Evans, Institute of Experimental Biology, University of California.

F. C. Koch, Chairman of the Department of Biochemistry, University of Chicago.

E. Shorr, Assistant Professor of Medicine, Cornell University Medical College, and the New York Hospital.

The Schering Award was established by the Schering Corporation in 1941, for the purpose of encouraging a wider interest in current endocrinological developments among undergraduate medical students. The competition is sponsored and administered by the Association of Internes and Medical Students, and participation is limited to undergraduate medical students in the United States and Canada. It is noted that all manuscripts must be submitted no later than January 15, 1944. Communications should be addressed to "The Interne", 7 East 42nd Street, New York 17, N. Y.

New Journal Sheds Light on Soviet Medicine

The first number of the American Review of Soviet Medicine which was scheduled to appear on October 25 features papers by Dr. E. I. Smirnov, executive director of the Red Army Medical Corps, and Dr. Nikolai N. Burdenko, chief surgeon of the Red Army. Dr. Smirnov's paper reveals for the first time the pre-war plans made for the care and hospitalization of the wounded, their shortcomings under actual battle conditions, and their subsequent drastic revision to meet the exigencies of mobile defense and attack. Dr. Burdenko, who has recently been granted honorary membership in the International College of Surgeons, discusses the effects of frostbite on the nervous system.

The issue also contains three survey papers: "Cancer Research in the Soviet Union," by Michael B. Shimkin, M.D., past assistant surgeon, National Cancer Institute, Bethesda, Md.; "Physical Culture in the Soviet Union," by Percy M. Dawson, M.D., professor of physiology, Duke University, Durham, N. C.; and "Twenty-Five Years of Health Work in the Soviet Union," by Henry E. Sigerist, M.D., director of the Institute of the History of Medicine, Johns Hopkins University, Baltimore, Md., and editor of the review.

Textbooks Wanted For Russian War Relief

Vast public health and rehabilitation problems facing Soviet authorities in the thousands of devastated communities recaptured from the Nazis this year are reflected in an appeal just received by Russian War Relief for more than 200 American textbooks urgently needed in Soviet medical schools and libraries.

Dr. Vladimir V. Lebedenko, noted Soviet neurosurgeon now in the United States on a Red Cross mission, gave the list to Russian War Relief with the plea that the books be collected as quickly as possible to aid in the training of thousands of additional physicians and other personnel needed to handle the enormous post-war job of rehabilitating soldiers and civilians suffering from the terrible impact of this war.

Russian War Relief pointed out that whereas medical textbooks previously requested by Soviet authorities were devoted to problems of military medicine, this new list is much broader in subject matter, ranging from plastic surgery to nutrition. It reflects a growing interest of Soviet health officials in the latest American findings in such fields as the treatment of tuberculosis and pneumonia, dietetics, child psychiatry and play therapy, stomach diseases, war neuroses, occupational therapy, psychology and mental hygiene. A few works on cattle and insect diseases are also needed.

Gifts of textbooks from American physicians and medical associations have played a part in the training of more than 66,000 doctors in the U.S.S.R. since June, 1941, according to Russian War Relief. Many letters have been received from physicians and students expressing deep gratitude for the books. The writers particularly mention their pleasure at receiving messages from the donors.

Dr. Lebedenko's medical booklist is available upon request from Russian War Relief, 11 East 35th St., New York 16, N. Y. Books donated should be sent to the above address.

The Mead Johnson Vitamin B Complex Award

Nominations are solicited for the 1944 award of $1,000 established by Mead Johnson and Company to promote researches dealing with the B complex vitamins. The recipient of this award will be chosen by a committee of judges of the American Institute of Nutrition. The award will be given to the laboratory (nonclinical) or clinical research worker in the United States or Canada who, in the opinion of the judges, has published during the previous calendar year January 1 to December 31 the most meritorious scientific report dealing with the field of the B complex vitamins. While the award will be given primarily for publication of specific papers, the judges are given considerable latitude in the exercise of their function. If in their judgment circumstances and justice so dictate, it may be recommended that the prize be divided between two or more persons. It may also be recommended that the award be made to a worker for valuable contributions over an extended period but not necessarily representative of a given year. Membership in the American Institute of Nutrition is not a requisite of eligibility for the award.

To be considered by the committee of judges, nominations for this award for work published in 1943 must be received by the secretary, Arthur H. Smith, Ph.D., Wayne University College of Medicine, Detroit, by Jan. 10, 1944. The nominations should be accompanied by such data relative to the nominee and his research as will facilitate the task of the committee of judges in its consideration of the nomination.

AUXILIARY

NATIONAL DEFENSE PROGRAM

The War Participation Committee of the Auxiliary to the Medical Society of the State of North Carolina has a four-purpose program outlined for this year.

Our main project will again be to raise money for use by the Medical and Surgical Relief Committee of America to supply emergency medical sets to small ships of the Coast Guard and Navy. We will conduct a fund raising campaign to help distribute these sorely-needed kits to patrol boats, destroyer escorts, mine sweepers, sub-chasers, rescue-ships and other small vessels. Each kit costs $25.00, and with it on board the personnel is prepared to give immediate treatment to casualties until the small, doctorless ships can reach a shore hospital. The Sixth Naval District, which includes our area, has headquarters in Charleston, S. C. To date it has received twenty kits of a promised total of fifty. We propose to subscribe the lacking thirty kits.

We hope to make an official presentation of the sets to a Navy or Coast Guard officer. Four such kits have been presented to the commanding officers of vessels now under construction at the Elizabeth City Shipyard. We will be particularly happy to donate kits needed by boats built right here in North Carolina.

To obtain the funds for the kits we shall sell book matches with the Medical and Surgical Relief Committee's emblem on them, and medical license plates. The matches are 50c a box (for fifty folders); the plates, $1.50 each. We shall initiate our sale on December 7, Pearl Harbor Day, as was done last year. The sale will continue throughout the year.

Our second objective is recommended by the Advisory Committee of the American Medical Association. They suggest that we help enlist the 65,000 nurses needed for an accelerated nurses' training course. We can further the program by arranging meetings with high schools and lay organizations to explain the Bolton Act, which was approved June 15, and which provides "for the training of nurses for the armed forces, governmental and civilian hospitals, health agencies and war industries through grants to institutions providing such training and for other purposes." Each county War Participation Chairman shall ascertain from her local hospital how she can best serve that institution and her country.

Third, we shall continue to promote interest among our members in first aid classes, nutrition, nurses aides, surgical dressings, canteen units, home nursing, blood banks, motor corps, war bond sales, victory gardens, entertainment of service men, and other work with the Red Cross or other organizations concerned with national defense.

Last but not least, we must not forget salvage. Donations of equipment have fallen off considerably during the last six months. Although surgical equipment is hard to procure these days, the Medical and Surgical Relief Committee again appeals to us to put on special drives for supplies. Particularly called for are thermometers, scalpels, clamps, forceps, scissors (surgical or ordinary), safety-pins and small wooden-handled knives (about the size of a paring knife) or sturdy penknives.

May spirit so stimulate our enterprise that goals aspired to may be fulfilled. When the year is over, I hope to look back on the present proposals with pride in the amount of work accomplished for the war effort by the doctors' wives in North Carolina.

MRS. B. W. ROBERTS
War Participation Chairman

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MEETING OF EXECUTIVE BOARD

The fall meeting of the Executive Board of the Auxiliary to the Medical Society of the State of North Carolina was held at the home of Dr. and Mrs. P. P. McCain at Sanatorium, on October 14.

Mrs. McCain, in her very gracious way, welcomed twenty-one members of the Board and entertained them at a delicious luncheon.

The President, Mrs. K. B. Pace of Greenville, presided at the meeting. She urged every member to use as her slogan for the year, "Study to show thyself approved." She especially stressed the war participation work, the McCain Endowment Fund, the Stevens Bed and the McCain Bed.

Reports were given from the chairman of the standing committees and from the councilors. They presented their completed plans for the year's work.

Dr. Rachel Davis of Kinston, Advisory Board Chairman, brought greetings from the Medical Society and made an interesting talk.

The following were present: Mrs. K. B.

Pace, Greenville; Mrs. John T. Saunders, Asheville; Mrs. R. A. Moore, Winston-Salem; Mrs. Fred Haar, Greenville; Mrs. E. C. Judd, Raleigh; Mrs. Harry L. Johnson, Greensboro; Dr. Rachel Davis, Kinston; Mrs. P. P. McCain, Sanatorium; Mrs. G. G. Dixon, Ayden; Mrs. John C. Reece, Winston-Salem; Mrs. Elbert MacMillan, Winston-Salem; Mrs. Ben F. Royal, Morehead City; Mrs. B. Watson Roberts, Durham; Mrs. Reece Berryhill, Chapel Hill; Mrs. R. S. McGeachy, New Bern; Mrs. D. M. Royal, Salemburg; Mrs. C. F. Strosnider, Goldsboro; Mrs. A. L. O'Briant, Raeford; Mrs. A. C. Bulla, Raleigh; Mrs. George Harrell, Winston-Salem; Mrs. Leslie Lee, Kinston.

BOOK REVIEWS

Nervousness, Indigestion and Pain. By Walter C. Alvarez, M.D., Professor of Medicine, University of Minnesota (Mayo Foundation); Consultant in the Division of Medicine, The Mayo Clinic, Rochester, Minnesota. 488 pages. Price, $5.00. New York: Paul B. Hoeber, Inc., Medical Book Department of Harper and Brothers, 1943.

This book is the successor of the author's **Nervous Indigestion**, which was published in 1930; but it has been so greatly enlarged that it is virtually a new book. However, the same delightfully free and easy style is preserved; there is the same common-sense approach to the diagnosis and treatment of the "nervous, psychopathic, poorly adjusted, much troubled or overworked and tired persons;" and throughout is the piquant sauce of the aptest possible quotations.

After explaining the various ways in which emotion can affect the digestive tract, the author tells just how he deals with patients in his office. While he is mindful of the value of laboratory findings, he puts the chief emphasis upon the importance of a good history and a careful physical examination. Numerous helpful hints not found in standard works on physical diagnosis are given. The common and even the uncommon masquerades assumed by disease are exposed. The technique of handling the nervous patient is explained: how to win his confidence, how to help him overcome his groundless fears, and how to recognize the ones who are therapeutically hopeless.

This reviewer has recommended Alvarez's **Nervous Indigestion** to scores of young doctors, as the best possible introduction to the practice of medicine. The present volume is far more comprehensive, and can be recommended even more heartily—not only to the young doctor, but to any one who wants to profit by the rich experience of the man who is an acknowledged authority in the field of the functional digestive disorders.

Collected Papers of The Mayo Clinic and The Mayo Foundation. Edited by Richard M. Hewitt, B.A., M.A., M.D.; A. B. Nevling, M.D.; John R. Miner, B.A., Sc.D.; James R. Eckman, A.B.; and M. Katharine Smith, B.A. Volume XXXIV—1942. 999 pages with 176 illustrations. Price, $11.00. Philadelphia and London: W. B. Saunders Company, 1943.

This is the thirty-fourth volume of the Collected Papers which have emanated from the Mayo Clinic, containing papers published from the period December, 1941 to December, 1942. A total of 513 articles form the basis of the volume—77 appearing in full, 59 by abridgement, 47 by abstract, and 330 by title only. Bibliographic references are omitted. The articles are arranged according to subject, and include: Recent Advances in Chemotherapy; Alimentary Tract; Genito-Urinary Organs; Ductless Glands; Blood and Circulatory Organs; Skin and Syphilis; Head, Trunk and Extremities; Chest; Brain; Spinal Cord and Nerves; Radiology and Physical Medicine; Anesthesia and Gas Therapy; and Miscellaneous. As this list indicates, the staff of the Mayo Clinic has maintained a commendable volume of output in all fields of medical interest. The publishers and others responsible for the preparation of the present volume are to be congratulated for a well arranged and excellently prepared volume.

Medical Clinics on Bone Diseases, A Text and Atlas. By I. Snapper, M.D., formerly with the Peiping Union Medical College, Peiping, China. 234 pages, with 190 original photographic reproductions on 30 plates. Price, $10.75. New York: Interscience Publishers, Inc., 1943.

Our knowledge of diseases of the bones has advanced markedly during the past fifteen years. The great diversity of clinical conditions affecting the osseous system are no longer shrouded in obscurity, nor is it necessary to hide our ignorance under the guise of a confused terminology. Dr. Snapper, who himself has contributed to the advancement of our knowledge in this field, has summarized this knowledge in a very comprehensive manner. The present monograph deals with von Recklinghausen's disease (hyperparathyroidism), hyperplasia of the parathyroids secondary to other diseases, rickets and osteomalacia, Paget's disease of the bone, lipoid granulomatosis of bone, Gaucher's disease, and multiple myeloma. These conditions are covered in a very detailed and critical manner.

The only criticism that the reviewer can offer is the fact that other diseases of bone receive no attention, so that the monograph is not all-inclusive, but limits itself to those conditions in which the author presumably has had the widest experience.

The volume has been excellently prepared, with photographs—which are so essential in this type of discussion—being particularly well reproduced on special cardboard plates. All interested in the subject of bone diseases will find the monograph of greatest interest and value.

Essentials of Pathology. By Lawrence W. Smith, M. D., Professor of Pathology, Temple University School of Medicine, and Edwin S. Gault, M.D., Associate Professor of Pathology, Temple University School of Medicine. With a foreword by James Ewing, M.D., Memorial Hospital, New York. Ed. 2. 904 pages, with index. Price, $10.00. New York: D. Appleton-Century Company, Inc.

It is only rarely that writers of textbooks abandon the traditional methods of their predecessors and inaugurate an entirely new approach to their subject. Smith and Gault introduced just such an innovation in the first edition of their textbook of Pathology, and the appearance of this second edition is evidence of the success of their venture. Instead of following the abstract methods of the usual text of Pathology, Smith and Gault introduced the use of case reports which are interpreted in the light of gross pathological data and according to the methods of histopathology. This has resulted in a text which is practical and which will appeal to the general practitioner as well as to the medical student. A total of 295 case histories are given as the basis for the text. The book consists of three parts: (1) General Pathology, (2) Oncology and (3) Systemic Pathology. More space is devoted to cancer than is the case in the usual text, and throughout the book emphasis is placed on diseases of practical importance. Pathology is the cornerstone upon which the practice of medicine and surgery is based, and the present text may be recommended to the general practitioner as well as to the specialist who desires a readable, up-to-date text on this basic subject.

Barometric Pressure, Researches in Experimental Physiology. By Paul Bert. Translated from the French by Mary Alice Hitchcock, M.A., formerly Professor of Romance Languages, University of Akron, and Fred A. Hitchcock, Ph.D., Associate Professor of Physiology, Ohio State University. 1055 pages. Price, $12.00. Columbus, Ohio: College Book Company, 1943. With a foreword by John F. Fulton, Professor of Physiology, Yale University.

As was the case with the work of Vesalius, Harvey, Boyle, and Faraday, many years had to elapse before the significance of Paul Bert's work on the physiological effects of variations in barometric pressure could be appreciated. Today with men flying daily into the stratosphere, the physiology of high altitude has become of primary practical importance.

Paul Bert, who was born in 1833 and died in 1886, was the successor of Claude Bernard at the Faculte' des Sciences of Paris, and published his classic monograph on respiratory physiology in 1874. The Hitchcocks and the publishers have made a notable contribution to medical literature by making Bert's classic work available in an English translation. Aside from its historical interest the book can be read with enjoyment by all interested in aviation physiology and high altitude ascents. To the former, the clear descriptions of Bert's experiments in pressure chambers, and to the latter his discussion of early ascents in balloons and of experiences in mountain climbing will make fascinating reading.

Gastro-Enterology, Volume I: The Esophagus and the Stomach. By Henry L. Bockus, M.D., Professor of Gastro-Enterology, University of Pennsylvania Graduate School of Medicine. 831 pages. Philadelphia: W. B. Saunders Company, 1943.

The first volume of perhaps the most comprehensive work on gastro-enterology yet published is a credit both to its author and to its publisher. The book is not a compendium of the opinions of others, but is based upon the author's own rich experience in treating patients with digestive disorders. The various organic and functional conditions that may affect the upper part of the digestive tract, and their etiology, diagnosis and treatment are discussed in detail. The illustrations—many of them colored—add greatly to the word-pictures drawn by the author.

If the remaining two volumes are worthy companions of the first one, the trio will constitute a system of gastro-enterology that will be of the greatest value to the doctor interested in this highly important field of medicine.

Methods of Treatment. By Logan Clendening, M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospitals; and Edward H. Hashinger, A.B., M.D., Clinical Professor of Medicine, Medical Department of Kansas; Attending Physician, University of Kansas Hospitals; Attending Physician, St. Luke's Hospital, Kansas City, Mo. Ed. 8. 1033 pages. Price, $10.00. St. Louis: C. V. Mosby Company, 1943.

The fact that Clendening's **Methods of Treatment** has gone through eight editions in less than twenty years is proof enough that it has filled a long felt need. The popularity of this book is based upon the care with which therapeutic measures are evaluated, the balance maintained between adequate description and excessive detail, and—above all—the real literary style which makes reading it a pleasure instead of a task. Logan Clendening is one of the true medical philosophers of our generation, and his genius permeates even a work on therapeutics. The book is a splendid investment for any practitioner or internist.

Injuries of the Skull, Brain and Spinal Cord. Edited by Samuel Brock, M.D., Professor of Neurology at New York University. Ed. 2. Price, $7.00. 616 pages with 78 figures. Baltimore: The Williams and Wilkins Company, 1943.

The second edition of this successful volume is presented to bring our knowledge of these important subjects up to date. The book follows the general plan of its previous edition. It is an integrated series of articles by men outstanding in neurology and allied fields. The material is presented in a readable style. Brief case histories are used to illustrate points in diagnosis and to emphasize possible sequelae. The photographs are well chosen. Treatment is clearly defined. The medicolegal aspects of head injuries are discussed at some length. This edition contains a chapter devoted to electroencephalography and its application in the study of damage to the brain.

Brock's **Injuries of the Skull, Brain and Spinal Cord** is highly recommended to all interested in this important aspect of medicine.

A Synopsis of Clinical Syphilis. By James Kirby Howles, B.S., M.D., M.M.S., Professor of Dermatology and Syphilology, and Director of the Department, Louisiana State University School of Medicine; Senior Visiting Physician, Charity Hospital of Louisiana at New Orleans; Visiting Physician, French Hospital, Mercy Hospital, Hotel Dieu, Southern Baptist Hospital and Touro Infirmary. 671 pages, with 121 text illustrations and 2 color plates. Price, $6.00. St. Louis: The C. V. Mosby Company, 1943.

The term "synopsis" is scarcely descriptive of the present volume, for it covers an amount of material which compares favorably with many of the regular texts on the subject. A complete coverage of the subject of clinical syphilis would entail a discussion of almost all medicine, for the disease may affect all bodily tissues and may mimic practically all other diseases. The author has covered the clinical aspects of the subject very adequately, describing in a concise yet readable fashion the essential facts necessary for the diagnosis and treatment of clinical syphilis. The book can be recommended without reservation for the general practitioner, who needs to be ever alert to the presence of the great dissimulator among diseases, and to be prepared to carry out the necessary treatments in a given case.

The Microscope and Its Use. By F. J. Munoz, Technical Microscope Consultant, in collaboration with Dr. Harry A. Charipper, Professor of Biology, New York University. 334 pages, with more than 100 illustrations. Price, $2.50. Brooklyn, New York: Chemical Publishing Company, Inc., 1943.

The authors of this book have succeeded in accumulating in a rather small volume an amazing amount of practical information regarding the microscope which should prove to be of considerable value to both teachers and students of microscopic science. After reading this book, one realizes how little information is generally available to medical students relative to the use and structure of an instrument which has become so important in modern medicine.

In addition to discussing the use and care of the microscope, the authors have included a brief section on the history of the instrument, as well as numerous helpful hints regarding the use of the microtome and the innumerable accessories which are available for microscopic work.

Although this book is directed primarily to the biological sciences, there are chapters which deal with the metallurgical microscope and the polarizing microscope. These increase its general usefulness.

The authors have taken into consideration the fact that such a book might be used to its greatest advantage by teachers and students and have therefore discussed the various subjects in such terms that they may be readily understood.

After a period of regression between the two wars, the number of tuberculosis cases in Sweden is once more increasing, and the health authorities have launched a nation-wide anti-tuberculosis campaign. Mass radiography and vaccination with BCG are the foremost measures suggested. At first everyone who has anything to do with children, passenger traffic and foodstuffs would be subject to these precautions which would later be extended to women and adolescents in industry. News item from The Lancet, Oct. 3, 1942.

Monograph on Lymphogranuloma Venereum

Noteworthy contributions to the detection and differential diagnosis of lymphogranuloma venereum are those of Rake, McKee and Shaffer, who have cultivated the agent in the yolk sac of the embryonated chicken's egg and obtained concentrated suspensions of elementary bodies. In this manner a highly purified and specific antigen, known as Lygranum S.T. has been prepared which is rapidly supplanting antigens prepared from either human pus or mouse brain. These workers alone, and in collaboration with Dr. A. W. Grace, have used the yolk sac antigen for the complement-fixation testing of serum suspectedly infected patients. The specificity and sensitivity of this antigen (Lygranum C.F.) provides an additional means of detecting early cases of lymphogranuloma venereum.

In the course of investigations involving these tests, there accumulated at the Squibb Institute for Medical Research a considerable mass of information concerning the properties of the causative agent, the epidemiology and clinical aspects of the disease. To facilitate the work of investigators and teachers in this field, and perhaps to encourage the interest of potential investigators, practicing physicians and health officers, it was decided to compile and publish the information at hand. The result is a 32-page publication entitled Lymphogranuloma Venereum—a Monograph. The value of the book is enhanced by maps, charts and numerous illustrations in color.

The Monograph is available gratis to physicians and to public health officials, and will be a valuable addition to medical college libraries. Those who request copies should enclose their professional card or use their professional letterhead.

Dr. Charles F. McKhann, who has for several years been on the faculty of the University of Michigan, has resigned from that institution to accept a position as Assistant to the President of Parke, Davis and Company. Dr. McKhann will devote his time entirely to the scientific activities of the company. He will assume his new duties October 15.

At the University, Dr. McKhann has held the positions of Professor of Pediatrics and Communicable Diseases in the Medical School, and Professor of Maternal and Child Health in the School of Public Health. He has also acted as Consultant to the Secretary of War in the Control of Epidemic Diseases.

Dr. McKhann has had an interesting and exceptional background of experience. The summer of 1941, previous to coming to the University of Michigan, he acted as Consultant to the Board of Health, Territory of Hawaii. From 1936 to 1940 he held the position of Associate Professor of Pediatrics and Communicable Diseases at Harvard Medical School and Harvard School of Public Health. Before that he spent a year as Visiting Professor of Pediatrics and Communicable Diseases at Peiping Union Medical College, Peiping, China.

Since 1930 he has conducted and directed research on communicable diseases, immunology, renal diseases, nutritional diseases, and on certain phases of toxicology. He developed and introduced immune globulin and has contributed to the development of several other products.

Dr. McKhann is a member of the Michigan State Medical Society, American Medical Association, American Society for Clinical Investigation (Vice-President, 1943), American College of Physicians, American Academy of Pediatrics, Society for Pediatric Research (President, 1936) and American Public Health Association.

Amebiasis

The incidence of amebiasis has been shown to be greater than was formerly supposed, and there is reason to believe that the disease may become even more prevalent when large numbers of troops begin to return home from the tropics. Surveys collected before the war revealed that more than one in ten subjects harbored **E. histolytica.** It would seem reasonable, therefore, that whenever intestinal symptoms form a part of the clinical picture, the diagnosis should not be considered complete until the possibility of amebiasis has been ruled out. Chronic, uncomplicated intestinal amebiasis is the most frequent type, and it includes the carrier as well as the individual with recurrent or mildly persistent symptoms. Pulvules Carbarsone, Lilly, each containing 0.25 Gm., may be given orally at the rate of one pulvule two or three times daily to a total of twenty doses (5 Gm.). This routine may ordinarily be repeated several times, provided intervals of ten days are allowed between courses and the urine and liver show no evidence of damage. Bed rest is not necessary in this group.

The Johnson & Johnson Research Foundation, New Brunswick, New Jersey, announced recently that the following statement of the Journal of the American Medical Association has been released for publication:

Dr. Ross G. Harrison, Chairman of the National Research Council, has announced the acceptance by the National Academy of Science—National Research Council—of a grant from the Johnson & Johnson Research Foundation in the amount of $75,000. The grant was made to enable the Division of Medical Sciences of the Council, under the chairmanship of Dr. Lewis H. Weed, to gather medical information pertaining to the war effort and to disseminate summaries. The program of the Division of Medical Sciences of the National Research Council contemplates coverage of the various medical reports and bulletins which emanate from civilian and military activities throughout the world. The enterprise should fill a much needed gap in the war effort in medicine; for one of the greatest difficulties encountered in medicine today lies in providing adequate up-to-date information to the medical officers of the armed services both in this country and abroad and in making the experience of war medicine available as far as possible to civilian physicians.

The Johnson & Johnson Research Foundation appropriation to the National Research Council becomes immediately available; in accordance with present plans it will be utilized in the period up to June 30, 1945. A central office will be established in Washington and reporters will be appointed in various foreign countries, so that a staff of special observers abroad will be working under the direction of the central office. The various theatres of operation present medical problems in which climate, season of year, distribution of insects, distribution of disease, all play different roles. Reports from widely separated parts of the world will be of greatest medical importance and it is hoped that with the combined effort much of significance will be achieved.

Many of the observations and laboratory studies cannot be released today because of the classified information contained in them—information of military importance. Such materials will be carefully held until release may be made. Every effort will be made, however, to issue bulletins containing current advances in medical practice and medical research which are not military secrets and which should be made available to the medical profession at the earliest possible date. This collection will form basic source material for later summaries of medical experience in the present world war. Not only data from the armed forces will be included but also material from other Federal agencies and from civilian enterprises.

The informational service will be under the direction of the Committee on Information of the Division of Medical Sciences which includes Dr. Morris Fishbein, Chairman, Dr. John F. Fulton, Dr. Richard M. Hewitt and Dr. Robert N. Nye, with liaison officers appointed by the three Surgeons General.

The Johnson & Johnson Research Foundation was established January 1, 1940 as a non-profit philanthropic organization by Johnson & Johnson, New Brunswick, N. J., with the express purpose of supporting research and development of products to serve the medical profession. It has made appropriations for both fundamental and developmental investigations and is currently sponsoring about one hundred projects located in twenty-eight universities. The fields of medical interest which have largely been supported are pharmacology (including antiseptics), allergy, physiological studies in pediatrics and human fertility.

A streamlined process of Penicillin production, resulting from two years' research in the Parke-Davis Laboratories, promises to cut down substantially the production time required, according to Homer C. Fritsch, General Manager of the Company.

"The present method of producing penicillin requires from 6½ to 14 days," he said in an interview recently. "We have advanced our methods to where we can produce in 2½ to 3 days without using cumbersome equipment."

This constitutes a significant forward step, since the bottle-neck in the Penicillin situation, to date, has been the fact that the drug has been available only in comparatively small amounts. Parke, Davis & Company is now regularly supplying Penicillin to the government and has recently expanded its facilities for producing the new "miracle" drug.

Care of Wounded by Army-Navy Medical Services Extolled by Squibb in Series of Advertisements

The bravery and skill of the Army and Navy medical services and the marvelous new drugs that are saving the lives, rehabilitating the bodies and alleviating the pain of men wounded in action are extolled in a series of advertisements in national magazines sponsored by E. R. Squibb & Sons, manufacturing chemists.

The advertisements appear under the generic title of "Miracles of the Battlefront," and are designed to acquaint the public with the heroic work of the medical services of the Army, Navy, Coast Guard and Marines, as well as call attention to some of the life-saving, pain-relieving drugs that are being used. The advertisements were planned and prepared with the cooperation of the medical services. Six insertions, extending into 1944, are scheduled in "The Saturday Evening Post," "Good Housekeeping," "Life" and "Hygeia."

Someone said that of all the millions of species of living organisms on the earth the two about which most has been written were man himself and—the tubercle bacillus. Biological Aspects of Infectious Disease. F. M. Burnet, M.D. 1940.

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Pharmacy's role in World War II and its success in making America independent of foreign sources for supplies of vital drugs, such as digitalis—modern medicine's most commonly used heart stimulant—were keynote topics at unveiling ceremonies for the fifth painting in the famed "Pioneers of American Medicine" series at Philadelphia November 5, during National Pharmacy Week.

A distinguished audience of 250 pharmacists, medical men and scientists gathered from all parts of the United States were on hand for the event, which paid tribute to William Proctor, Jr., world-famous for his work in the standardization of drugs.

The 1943 painting is entitled "The Father of American Pharmacy" and depicts Proctor (1817-1872), studying a formula for the standardization of drugs while at work with an assistant in his laboratory.

Principal speaker at the unveiling, held at a dinner in the Barclay, was Dr. Ivor Griffith, Ph.M., Sc.D., F.R.S.A., president of the American Pharmaceutical Association and president of the Philadelphia College of Pharmacy and Science. A special exhibit of drug producing plants formerly imported, now cultivated in the United States, was shown at the unveiling.

Back in 1917, while a Navy medical corps pharmacist at Brest, France, Frank F. Law, president of John Wyeth & Brother, Inc., conceived the plan of creating an enduring monument in oils to American medical pioneers when he witnessed the marvels of American surgery among battle wounded. Law determined then, that if he ever got the opportunity, he would erect such a monument. His dream came true five years ago when, at his behest, the Wyeth company commissioned Cornwell to begin the series.

Other paintings in the series, which are loaned to medical schools and medical societies, are "The Dawn of Abdominal Surgery," a tribute to Dr. Ephraim McDowell, depicting the world's first successful ovariotomy; "Beaumont and St. Martin," honoring Dr. William Beaumont, who pioneered in the study of the stomach's digestive functions; "Osler at Old Blockley", in honor of Sir William Osler, pioneer teacher of clinical medicine, and "Conquerors of Yellow Fever," a tribute to Drs. Walter Reed and Carlos Finley, whose work made possible construction of the Panama Canal, vital wartime lifeline.

Twelve paintings in the series are contemplated, one to be unveiled each year. Cornwell, whose studio is in Alhambra, Calif., will attend the unveiling.

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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 4 DECEMBER, 1943 NUMBER 12

SOME RHINOLARYNGOLOGICAL TUMORS OF UNUSUAL CLINICAL INTEREST

A Small Series Presenting Infrequent Character, Difficulty in Management or Both

V. K. HART, M.D.

CHARLOTTE

The following series of cases are reported because the patients presented rhinolaryngological tumors unusual in character or in difficulty of management, or both. Pathologically, these tumors constitute a wide variety of growths.

Report of Cases

Case 1. Metastasis of hypernephroma to the frontal sinuses.

The patient was a white male, aged 50 years, who first came under observation on January 6, 1941. He complained of swelling of the forehead and eyes. This had begun one month previously without any obvious reason.

There was a soft fluctuating mass just to the left of the midline and immediately above the orbital rim, and a semi-soft mass at the inner angle of each orbit. The upper lids had a "puffed" appearance. In the right middle meatus a small polyp and some discharge were present. All sinuses, particularly the frontals, were dull to transillumination. Otherwise, the examination revealed nothing of consequence.

The Kline test was reported as negative. The stereoscopic skull films were very informative. Of chief interest were the frontal sinuses, which were opaque, with evidence of destruction of the anterior walls on both sides. The radiologist interpreted the film as showing a probable malignancy.

Under local anesthesia an incision was made over the mass on the forehead. Tumor tissue was immediately encountered. This had destroyed a large part of the anterior wall of the frontal sinuses. Several large pieces were taken with punch forceps for microscopic examination. The bleeding was very free and was controlled only by electrocoagulation. Closure was done with interrupted dermal sutures and one iodoform drain. The tissue was submitted to four pathologists. Two of them reported hypernephroma.

The patient had had no genito-urinary symptoms whatever. Nevertheless, a pyelogram done by the consulting urologist was reported as showing a large tumor in the left kidney.

Extensive x-ray therapy was given by the radiologist to both the frontal sinuses and the left kidney. The patient died on October 21, 1942 (twenty-one months after the first examination), from extensive metastases. At the time of death he had a pathologic fracture of his right arm and was completely paralyzed in both lower limbs.

Discussion. There are numerous cases of metastatic hypernephroma reported in the literature. Of particular interest are two

From the Charlotte Eye, Ear, Nose and Throat Hospital.
Read before the Southern Section of the American Laryngological, Rhinological and Otological Society, January 28, 1943, and before the Second General Session, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.



Fig. 1. Case 1. Photograph of patient with metastatic hypernephroma of the frontal sinuses. Note bulging of the forehead and swelling of the upper eyelids.



Fig. 2. Case 1. Pyelogram of the same patient, showing filling defect of left kidney.

cases reported by Vinson and his associates[1] which were diagnosed by bronchoscopy. However, I have found only one report of metastasis to the frontal sinuses. This was by Connor[2] and the findings and course were very similar to those in this case. Connor mentions one case each reported in the German and Italian literature.

Case 2. Osteoma of the frontal sinuses.

This patient, a white male 32 years of age, was referred for examination on October 13, 1942. He had had some intermittent postnasal discharge for several years. In March of 1942, his eyes swelled and remained swollen for several weeks. The swelling subsided under conservative treatment. An x-ray study in another city disclosed what was diagnosed as a large osteoma of the frontal sinuses. At this time the patient first came under my observation.

Stereoscopic skull films, both anterior-posterior and lateral, confirmed the previous roentgen findings. A dense mass occupied a large part of both frontal sinuses, and the ethmoid area on the right. The lateral view showed the posterior walls of the frontals to be apparently intact. In other words, there was no radiologic evidence of an intracranial extension. Furthermore, there had been no central nervous system manifestations whatever. The problem, then, was distinctly rhinologic. Because of the grave danger of later orbital or intracranial extension, operation was advised and was performed on October 13, 1942.

Under avertin and ether anesthesia the conventional incisions were made through the eyebrow and onto the side of the nose on each side. These incisions were connected by a transverse incision across the upper nose. This incision was in turn bisected by a vertical incision upward over the frontal bone. All periosteal layers were carefully

1. (a) Vinson, Porter P. and Martin, W. J., Jr.: Pulmonary Metastasis from Hypernephroma Diagnosed by Bronchoscopy. Arch. Otolaryng. 15:368-370 (March) 1932.
   (b) Maytum, C. K., and Vinson, Porter P.: Pulmonary Metastasis from Hypernephroma with Ulceration into a Bronchus Simulating Primary Bronchial Carcinoma. Arch. Otolaryng. 23:101-104 (Jan.) 1936.
2. Connor, C. E.: Metastatic Hypernephroma of Right Frontal Ethmoid and Maxillary Sinuses. Arch. Otolaryng. 28:994-998 (Dec.) 1938.

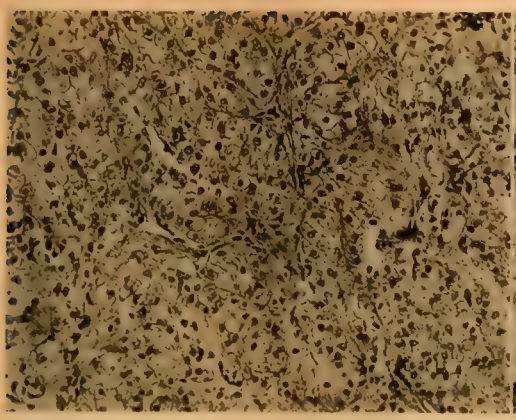


Fig. 3. Case 1. Low power magnification of biopsy, showing large polygonal cells with foamy cytoplasm and nuclei which are usually located in the center of the cytoplasm. Cells are arranged in solid nests and occasionally form tubular structures. There is practically no stroma with the exception of capillaries.

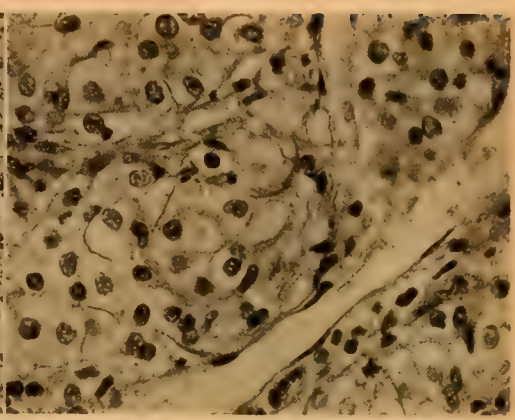


Fig. 4. Case 1. High power magnification of figure 3.

elevated. This gave a wide, safe approach to the whole field.

The outer angle of the right frontal sinus was first entered with hammer and chisel. A large bony tumor was at once seen. The whole anterior wall was then removed with rongeurs. (The interfrontal septum had, of course, been destroyed.) Both floors were then removed, together with the os planum on each side. All accessible ethmoid cells were also excised. It was then surprisingly easy to pry the main body of the tumor from its bed by means of a chisel. The lower portion, extending into the right ethmoid area, was slightly more fixed. However, it was removed in one piece with hammer and chisel. In exposing the growth only one small area of dura was uncovered in the upper portion of the left frontal sinus. The posterior walls were otherwise intact.

The frontal ducts were then further enlarged, and the middle turbinates were amputated. One iodoform pack was placed in each frontal sinus, with exit through the frontal duct. Primary closure was done with silk sutures.

During the operation the patient was given 1000 cc. of 5 per cent glucose in normal saline. Three hundred cubic centimeters of citrated blood was also given. He showed no evidence of shock and left the table in good condition.

Convalescence was uneventful. There was no secondary infection. The patient was discharged one week later.

The pathologic diagnosis was osteoma.

On November 16 the patient returned with a fluctuating swelling over the midfrontal region. He said he had contracted a cold several days previously. The following day the midline incision was reopened and much pus evacuated. Infected granulation tissue was removed by curette. An iodoform drain was placed in the nose through each frontal duct, and primary closure was done. No anesthesia was used except intranasal cocaine.

The infection promptly subsided. The cosmetic result is excellent, and the patient has remained well since.

Discussion. The literature on this subject is quite interesting. Cushing[3] in 1927 contributed one of his classic articles, in which he reported 4 cases with intracranial complications. His first patient died from a secondary meningitis incidental to a break in the dura produced by the osteoma and left exposed by the removal. From this experience he developed the use of the fascia transplant over such dural defects. He also lost his second case from a later, non-operative meningitis. In this case he opened an infected frontal sinus at operation and was afraid to remove the osteoma. There was also a large ventricular pneumatocele, and the patient developed a cerebrospinal rhinorrhea. He saved the lives of his two other patients by the use of fascia transplants. One of these also had a large intracranial pneumatocele. A transfrontal osteoplastic approach was used in all cases.

Cushing pointed out that over a period of

3. Cushing, Harvey: Experiences with Orbito-Ethmoidal Osteomata Having Intracranial Complications, Surg. Gynec. & Obst. 44:721-742 (June) 1927.



Fig. 5. Case 2. X-ray film which shows a large osteoma involving both frontal sinuses and the right ethmoid.

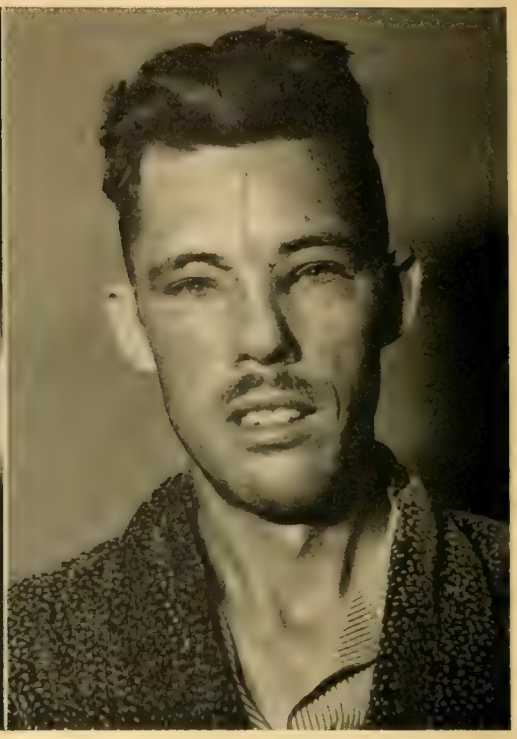


Fig. 6. Case 2. Photograph of patient one week after operation. The cosmetic result is excellent.

seven years, and in 15,000 sinus x-rays at the Massachusetts Eye and Ear Infirmary, only one large osteoma was encountered. Occasional, symptomless pea-sized osteomas were excluded.

In 1935 Carmody[4] reported 6 cases of osteomas of the sinuses. Four of these involved the frontal sinus and were successfully handled by a frontal approach. He tabulated 139 cases from the literature.

Gatewood and Settel[5] in the same year reported a successful operation on one patient by the frontal approach. In their review of the literature they pointed out that up until 1898 only 20 cases had been attacked surgically, with a mortality of 45 per cent. They listed their case as number 147. This tallies closely with Carmody's 139 tabulated cases, plus the 6 cases of his own.

In 1938 Pilcher[6] recorded 3 successful operations for osteomas by the transcranial approach. Only one of these was an osteoma of the frontal sinus, and in this case there was extension into the orbit and cranial cavity. The other two involved (1) the inner plate of the temporal bone and (2) the falx and dura without involvement of the bony cage.

All of these writers lay stress on the possible embryonic origin of osteomas from cartilagenous cell rests in the ethmoid. (The ethmoid bone develops from cartilage, the frontal from a membranous anlage.) The possible roles of trauma and infection are mentioned. Childrey[7] speaks of the latter as a spurious bony growth. He points out that in inflammatory tissue fibroblasts may become osteoblasts.

Case 3. Melanoma metastatic to the sphenoid sinus.

I was asked to see this patient in consultation on July 3, 1941, because of pain over the left eye and a slight exophthalmos of the

4. Carmody, Thomas Edward: Osteoma of the Nasal Accessory Sinuses, Ann. Otol. Rhin. & Laryng. 44:626-643 (Sept.) 1935.
5. Gatewood, William Lawrence, and Settel, Nathan: Osteoma of the Frontal Sinus, Arch. Otolaryng. 22:154-164 (Aug.) 1935.
6. Pilcher, Cobb: Bony Intracranial Tumors, South. M. J. 31: 618-619 (June) 1938.
7. Childrey, John H.: Osteoma of the Sinuses, the Frontal and the Sphenoid Bone, Arch. Otolaryng. 30:63-72 (July) 1939.



Fig. 7. Case 2. Photograph of operative field. The outer wall of both frontal sinuses has been removed. Note the large, bony tumor completely filling both sinuses and extending into the right ethmoid.

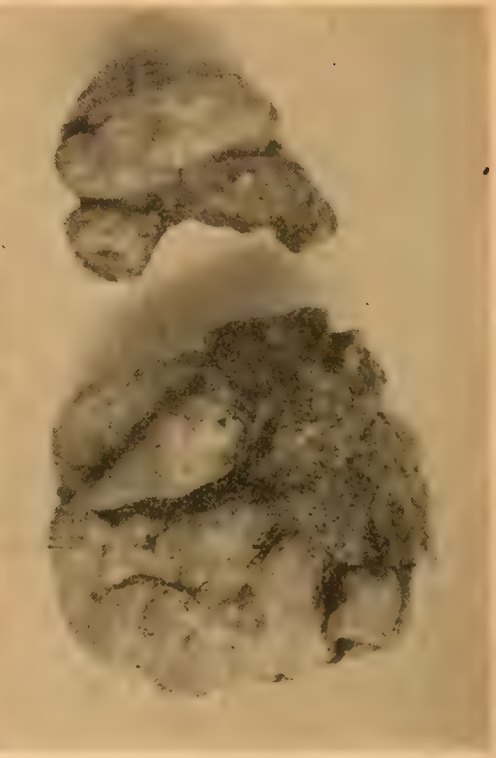


Fig. 8. Case 2. Photograph of gross specimen. The tumor was removed in two pieces.

same eye. He was a white male 34 years of age. The pain had begun six months previously, and he had been treated for a supposed sinus infection. Five weeks prior to my examination he had had a submucous resection. One week before I saw him he developed double vision.

The operative result of his submucous resection was good. There were some adhesions between the left middle turbinate and the septum. There was present also about the middle turbinate what appeared to be granulation tissue. When some of this tissue was removed for biopsy there was noted a marked tendency to bleed. No suppuration was apparent and the sinuses transilluminated very well. The rest of the ear, nose and throat examination gave no important findings.

Clinically, I felt that, in order of probability, we were dealing with (1) a neoplasm or (2) an inflammatory lesion. Although the biopsy material was reported as inflammatory tissue, stereoscopic skull films showed what appeared to be a destructive and infiltrating tumor involving both sphenoid sinuses which had apparently broken through the floor of the sella.

A second biopsy was done. Because of the marked tendency to bleed a postnasal pack was first put in position. Intranasal cocaine anesthesia was used. The left middle turbinate was displaced laterally and the sphenoid easily entered. Very free bleeding occurred, necessitating the constant use of suction. The sphenoid was obviously excavated and I got the impression of a dehiscence in the posterior wall. Several specimens were taken for microscopic examination from within the sinus. Two vaseline gauze packs were placed within the sphenoid to control the bleeding.

This time the pathologic diagnosis was malignant melanoma. Despite the gloomy prognosis, neurosurgical consultation was asked. The lesion was declared by the consultant to be inoperable. X-ray therapy was given without any demonstrable influence

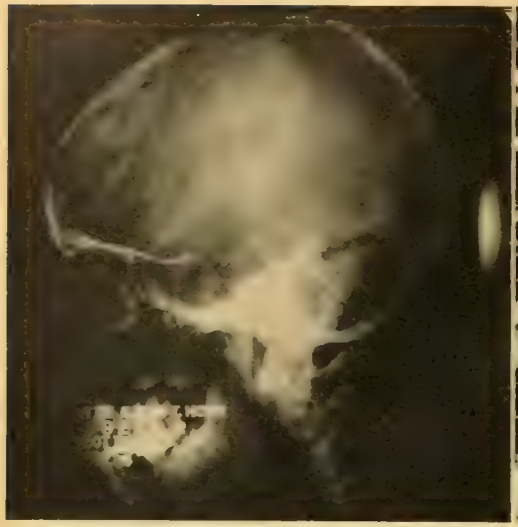


Fig. 9. Case 3. X-ray film showing extensive destruction of the posterior sphenoidal wall and the floor of the sella by a metastatic melanoma.

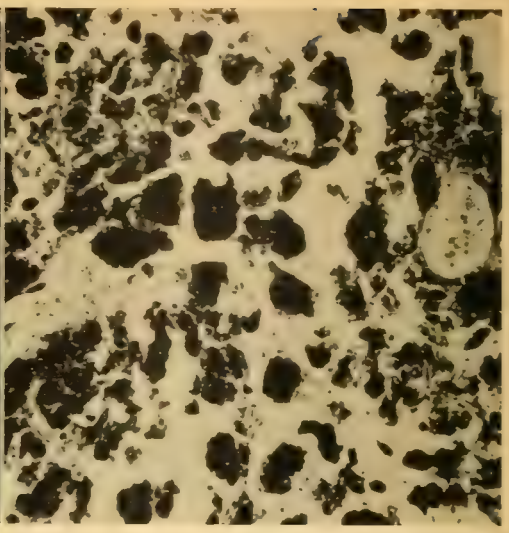


Fig. 10. Case 3. High power magnification of biopsy specimen from the sphenoid. Nuclear structures and cytoplasm cannot be distinguished in black and white microphotographs, since the cells are filled with melanotic pigment.

on the tumor. The patient died on November 30, 1941, about five months after the first examination.

Discussion. The past history of this patient revealed that a surgeon had removed a mole from his back on December 24, 1931. The pathologic diagnosis was "Early malignant degeneration of pigmented mole—Melanoma." Hence, we can only assume that the sphenoid tumor was a metastatic growth, despite the fact that a ten-year period elapsed before the symptoms of the final illness developed. Rulison[8] recently reported a metastasis to the axillary glands nine years and three months after removal of four brown moles from the back.

In another of my patients metastasis occurred from the foot to the tonsil a few months after a quack doctor had treated a pigmented mole with a caustic paste.

Adair[9] gives a very comprehensive review of the whole subject of melanoma. Four hundred cases were covered in his report. He emphasized the fact that brown moles should not be disturbed; that we should be concerned only about those containing black pigment. Electrodesiccation is not held in high regard by him. Only wide, careful surgical excision is advocated.

It is surprising to note that 9 patients with pigmented melanoma who were treated by radiation alone survived for five years or more. (However, 3 died later, 3 had disease present, and only 3 were free of the disease at the time of writing.) Adair states that only non-pigmented melanoma is usually radio-sensitive.

Melanoma of the eye has a rather typical course. The patient may survive many years after enucleation. Adair cites one case in which the patient lived twenty-five years before metastasis was manifested.

Twenty-three patients with primary operable melanoma survived the five-year period. Two later died. Eighteen were still free of the disease at the time of writing. From the recorded cases, however, it is obvious that a five-year period of survival is no safe standard of cure.

Case 4. Neurinoma of the tongue.

This patient was a white girl 16 years of age. She was first seen on August 2, 1941, complaining of a growth on her tongue. The time of onset was indefinite; she only knew that it had been there for some time. It had slowly enlarged to the point where it was interfering with speech.

Examination disclosed a lobulated, well circumscribed growth on the upper surface near the anterior extremity, just to the right of the midline. The consistency was firm.

8. Rulison, R. H.: Malignant Melanoma, J. A. M. A. 119: 1254 (Aug. 15) 1942.
9. Adair, Frank E.: Treatment of Melanoma, Surg. Gynec. & Obst. 62: 406-409 (Feb. 15) 1936.

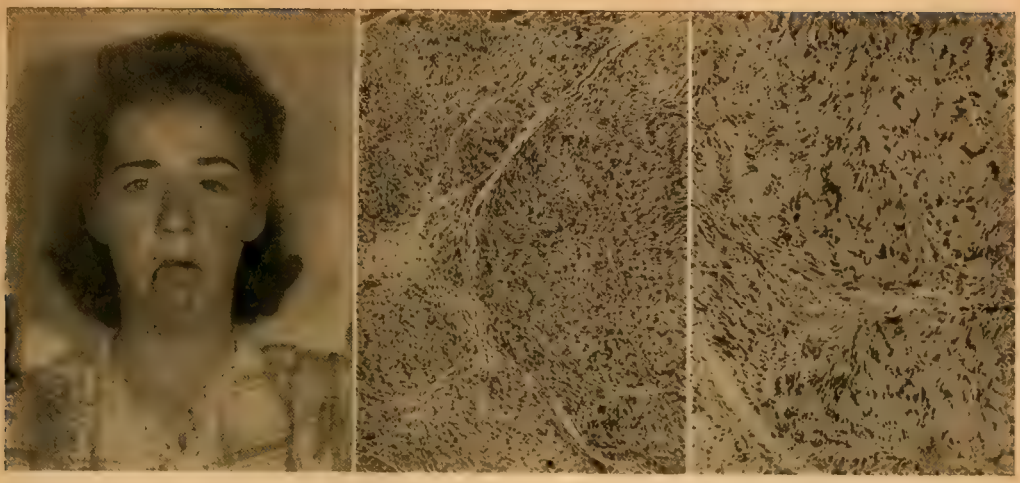


Fig. 11. Case 4. Photograph of tumor of the anterior tongue which proved to be neurinoma.
Fig. 12. Case 4. Low power field which shows spindle cells arranged in bundles and fascicles separated by thin strands of connective tissue. A palisade arrangement of nuclei can readily be seen.

Fig. 13. Case 4. High power field, showing palisade arrangement of the nuclei. In between the elongated nuclei is seen a hazy, somewhat fibrillary material which does not take a connective tissue stain. The nuclei are well differentiated. Mitotic figures are absent.

There was no break or ulceration of the covering mucous membrane. The size was somewhat larger than a walnut.

I felt that this was a benign tumor and advised operation. This was done under local novocaine anesthesia on August 9, 1941. The growth was easily dissected free from the overlying mucosa and surrounding tissues. The wound margins were approximated with interrupted silk sutures. Uneventful convalescence followed. The pathologic diagnosis was neurinoma. There has been no evidence of recurrence to date.

Discussion. This tumor has been reported under several other names: schwannoma, perineural fibroblastoma, peripheral glioma, and neurilemoma. The last designation is probably the most accurate, because Murray and Stout[10] have shown rather conclusively by tissue culture *in vitro* that the origin is from the nerve sheath.

Stout[11] reported 52 of these tumors in 50 patients. He pointed out that they are, at times, associated with von Recklinghausen's disease (multiple neurofibroma). He also tabulated from the literature 194 additional cases, making a total, with his own 52 cases, of 246. Of these 246 tumors, only 10 were in the tongue or sublingual tissues. Not included, apparently, was the neurinoma of the tongue reported by Tavares[12] a year prior to Stout's report.

Since then Coates[13] has reported a neurinoma involving the floor of the mouth, and Torricelli[14] has reported recently a "plexiform neuroma" of the tongue associated with von Recklinghausen's disease. The author thought that histologically the tumors of the tongue and skin were identical. There are probably a few other recorded instances of this tumor with involvement of the tongue which could be found with painstaking search of the literature. These cases are difficult to locate because of the varied terminology used. Nevertheless, enough evidence is at hand to show that in the tongue this is quite an unusual tumor.

Surgically these tumors present no unusual difficulties. A great deal depends on the location and on their relationship to surrounding structures. Stout states that if a large nerve is involved, there may be some difficulty in separating it from the tumor without nerve injury. No nerve was demonstrated in the case reported, probably because it was a small peripheral nerve.

10. Murray, Margaret R. and Stout, Arthur Purdy: Schwann Cell Versus Fibroblast as the Origin of the Specific Nerve Sheath Tumor, Am. J. Path. 16:41-60 (Jan.) 1940.
11. Stout, Arthur Purdy: The Peripheral Manifestations of the Specific Nerve Sheath Tumor (Neurilemoma). Am. J. Cancer, 24:751-796 (Aug.) 1935.
12. Tavares, A.: Neurinoma of Tongue, Folia anat. univ. conimb. (art. 5) 9:1-10, 1934.
13. Coates, G. M.: Schwannoma of the Mouth, Arch. Otolaryng. 34:1166-1167 (Dec.) 1941.
14. Torricelli, C.: Recklinghausen's Neurofibromatosis, with Report of a Case Associated with Plexiform Neuroma of Tongue in a Child, Pediatria 47:891-909 (Oct.) 1939.

Case 5. Cylindroma of the trachea.

This patient, a white male of 48 years, was sent to our clinic on November 24, 1941. The complaint was difficult breathing. This had begun six months previously with a gradual onset. There had been no cough, fever or hemorrhage, and the patient had been otherwise well. Until seen by the referring physician, he had been treated for asthma. However, the dyspnea had gradually gotten worse.

The patient was a robust, well nourished individual with a marked and obvious inspiratory stridor. Nothing of consequence was found in the ear, nose and throat examination. Indirect laryngoscopy did not reveal the cause of the obstruction. A chest plate showed normal lung fields, and no widening of the aortic arch. The blood pressure was 110 systolic, 80 diastolic.

I felt that the patient had a tracheal tumor, and advised endoscopic study. Therefore, on December 1, 1941, bronchoscopy was done after preliminary sedation and local cocaine anesthesia. A No. 7 bronchoscope was passed. The operative record is quoted: "At nine inches from the upper incisor teeth a large tracheal growth was encountered, springing from the left lateral and anterior wall. The bronchoscope was gently forced past this with complete relief of the dyspnea. I would say the growth extended about one inch from above downwards and occupied a full three quarters of the lumen. In fact there was only a small slit remaining through which he breathed. Both right and left main-stem bronchi and their appendages were normal.

"Because of the imminence of sudden suffocation, the bronchoscope was left in position and the patient prepared for tracheotomy.

"Tracheotomy and Biopsy: Following novocaine infiltration the trachea was carefully exposed through a midline incision, and laid bare below the thyroid isthmus. A punch tracheotomy was done, allowing us to expose the growth, a large part of which was removed for microscopic examination. Part of the rest was destroyed with the actual electric cautery. A long T-shaped cannula was placed in position so as to be well below the growth. Closure was done with interrupted and mattress silk sutures."

The pathologist who examined the tissue removed summarized his report as follows: "This type of tumor is unusual in the trachea. It may be classified as basal cell carcinoma or cylindroma. Its structures resemble most closely those of salivary gland mixed tumor type."

Pathologically, then, we were dealing with a lesion which was curable. At least there was a very good chance of permanent relief if the neoplasm was promptly and thoroughly eradicated.

Therefore, on December 9, 1941, under local anesthesia, an anterior commissure laryngoscope was inserted through the tracheotomy wound. The residual tumor tissue was snared off with a laryngeal snare and the cautery applied until a rather flat bed was obtained. By actual measurement the lower border of the tumor was 5 cm. from the bifurcation, about 2 cm. in superior-inferior diameter, and 2 cm. in width.

Tracheoscopy was repeated through the tracheotomy wound on December 12 under local anesthesia. The whole bed of the growth was thoroughly cauterized with the electric cautery. This process was repeated on December 15 and December 26. On the latter date, the amount of fungating tissue to be cauterized was very small. As a whole there seemed to be a normal, healing bed of granulation tissue.

On January 16, 1942, tracheoscopy showed the lesion to be completely healed with normal epithelium except for a small area on the left lateral wall which I interpreted as a small unhealed slough from the cautery. No cautery was done on this date. On January 30, 1942, a small unhealed area persisted on the left lateral wall. This was therefore judiciously cauterized. The tracheotomy tube was removed.

On March 31, 1942, bronchoscopy showed complete healing. The lumen was normal, and the mucous membrane was entirely normal and flat. Indeed one could not have told that a growth had ever been present. In the meantime the patient had had a course of deep x-ray therapy.

Bronchoscopic examination was repeated on September 9, 1942. The trachea was entirely normal in every respect. The patient had remained symptom-free. However, he has been advised to have a bronchoscopic examination every three or four months for several years.

Discussion. The case contains a lesson. No inspiratory dyspnea should be considered

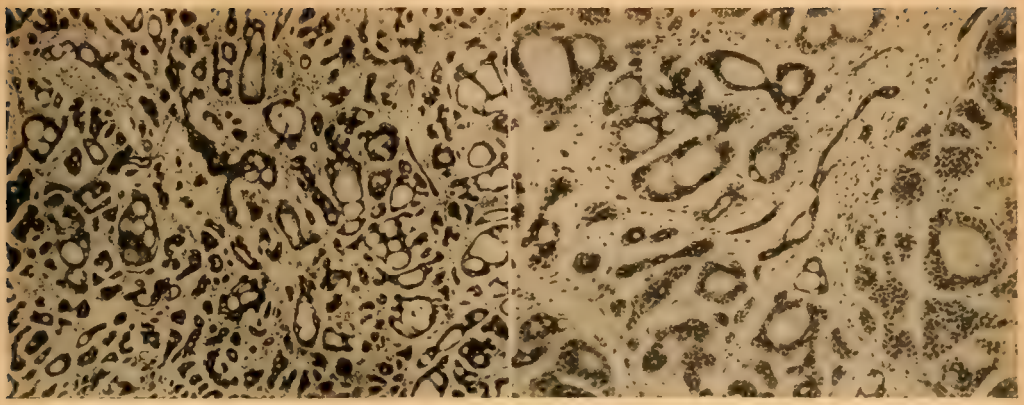


Fig. 14. Case 5. Low power magnification of cylindroma of the trachea, showing strands and nests of epithelial cells. Some of them are solid, others form ducts and glands.

Fig. 15. Case 5. High power magnification showing the epithelial cells cuboidal in shape with dark stained, centrally located nuclei. Some of them are in solid nests, others form glands filled with homogeneous, reddish stained material. The interstitial tissues show tendency to mucoid degeneration.

an asthma. It almost always means obstruction somewhere above the bifurcation.

Recently, on my service at the North Carolina Tuberculosis Sanatorium, I have encountered another cylindroma. This was in a young woman who had been completely incapacitated by the obstructive dyspnea. The lesion involved a large part of the lower trachea and was beginning to involve the upper bronchi. Four successive extensive cauterizations were done with the electric cautery through the bronchoscope. Bleeding, as in adenoma, was at times troublesome but was controlled with cocaine and adrenalin sponges. She has been completely relieved and has returned to work.

This type of growth is unusual in the trachea. Kramer and Som[15] have contributed an excellent article on this subject. They cite these characteristics of cylindroma: (1) The mucosa is intact and the vessels are not prominent. (2) It is surrounded usually by a capsule. Ingrowth of septums may give a lobulated appearance. (3) There is a glassy appearance on section. (4) It is sessile in attachment. (5) There is a marked tendency to local recurrence. (6) It is slowly growing, yet locally malignant by pressure necrosis and actual invasion. (7) Distant metastases are rare. (8) Transition to carcinoma is rare.

These authors state further that cylindromas most frequently occur in the salivary and lacrimal glands. They may also, according to them, occur in the sinuses, pharynx, trachea and lungs.

Six cases are listed by these same authors. In one the tumor originated in the nasopharynx and invaded the middle ear. The patient died despite radiation. In another the growth involved the maxillary sinus, with extension to the nasopharynx and palate. Treatment was by radical excision, diathermy and radium. The patient had survived seven years at the time of writing, with no recurrence or metastasis. The third cylindroma involved the trachea. It was removed with punch forceps following a tracheotomy, and the patient was subsequently given radiotherapy. There had been no recurrence after four years. The other three tumors all involved the bronchus. One patient died of hemorrhage following the insertion of radium needles. The other two were treated by repeated bronchoscopic removal. In one case diathermy was also used. There was a slight recurrence in one at the end of three years; none in the other at the end of two years.

Kramer and Som feel that the best treatment is local excision with diathermy, followed by radiotherapy.

Although these authors state that no other cylindromas of the bronchus have been reported, they themselves had reported previously on bronchial adenomas[16]. The ques-

15. Kramer, Rudolph and Som, Max: Cylindroma of the Upper Air Passages, Arch. Otolaryng. 29:356 370 (Feb.) 1939.

16. Kramer, Rudolph and Som, Max: Further Study of Adenoma of the Bronchus, Ann. Otol., Rhin. & Laryng., 44: 861-878 (Sept.) 1935.

tion at once arises whether the latter tumors belong in a different pathologic group from the cylindromas. I asked Dr. Paul Kimmelstiel, the pathologist at the Charlotte Memorial Hospital, who made the pathologic report on the case here presented, to clarify this situation. He states: "According to my own concept, cylindromas merely represent a variation of a basal type of tumor characterized by certain criteria—that is, a colloid, mucinous-like material filling or surrounding tubular structures."

Histologically, then, there is a difference. However, Dr. Kimmelstiel also stated that he believed both cylindromas and adenomas to be variations of basal cell tumors.

Goldman and Stephens[17], Brunn and Goldman[18], Mallory[19], Jackson and Konzelmann[20] and others have contributed to the literature on bronchial adenoma. From these articles it is apparent that certain clinical features are common to both cylindromas and adenomas. These similarities suggest that they belong in the same pathologic group of benign tumors. Both are usually covered with intact mucous membranes, and are sharply demarcated. Malignant degeneration and metastasis are uncommon in both. Both destroy by expansion (penetration) rather than infiltration. Both are slowly growing and, according to clinical reports, respond well to the same type of endoscopic treatment—namely, removal plus the use of some type of electric cautery. Radium seeds and x-ray therapy have also been used as adjuncts in some cases. In both groups large extensions may occur into the surrounding tissues. (Therefore, in late cases, the problem may be primarily one of radical chest surgery.)

With all that has been written in recent years about adenoma of the bronchus, it would hardly be consistent with the title of this paper to recapitulate one of our own case records. Suffice it to say that our experience, though more limited than that of others, confirms the clinical reports. Bleeding is a common symptom. We usually do not see these cases until secondary chest symptoms, occasionally of long duration, occur as a result of bronchial obstruction. To cite an exception to this rule, however, I am treating now by repeated cauterization an adenoma of the left bronchus with no secondary infection, of which the only manifestation was cough. In 1937, I reported an adenoma of the bronchus[21] with mistaken diagnosis of malignancy. The patient continues symptom-free.

17. Goldman, Alfred, and Stephens, H. B.: Polypoid Bronchial Tumors, with Special Reference to Bronchial Adenomas, J. Thoracic Surg. 10:327-353 (Feb.) 1941.
18. Brunn, Harold and Goldman, Alfred: Bronchial Adenoma, Am. J. Surg. 54:179-192 (Oct.) 1941.
19. Mallory, Tracy B.: Case Records of the Massachusetts General Hospital, New England J. Med. 225:983 (Dec. 18) 1941.
20. Jackson, Chevalier L. and Konzelmann, Frank W.: Bronchoscopic Aspects of Bronchial Tumors with Special Reference to the So-Called Bronchial Adenoma, J. Thoracic Surg. 6:312-329 (Feb.) 1937.

Summary

Five unusual rhinolaryngological tumors are presented. These include two hopeless metastatic lesions to the frontal and sphenoid sinuses—namely, hypernephroma and melanoma respectively.

An osteoma of the frontal sinus with successful operation is also reported. Emphasis is placed on the possible intracranial complications of these tumors. If the growth is intracranial, the neurosurgical rather than the rhinological aspect becomes of first importance. In the large osteomas, operation is always justified even if no orbital or intracranial extensions are present. One or both of these complications will inevitably develop in time. The surgical approach must be radical to be successful.

Lastly a neurinoma of the tongue and a cylindroma of the trachea with successful surgical intervention are recorded. The former neoplasm must be quite rare in the tongue, judging by the literature on the subject. It is, however, easily handled surgically.

Cylindroma of the trachea is also unusual. Persistent and repeated endoscopic removal and the application of some type of electric cautery is essential to successful treatment. Radiation is of doubtful value. The patient must be observed over a long period of time to guard against recurrence. Some of the clinical similarities between cylindroma and adenoma are cited.

21. Hart, V. K.: Report of Four Interesting Bronchoscopic Cases, Tr. Am. Laryng., Rhin. & Otol. Soc. 43:380-398, 1937.

Medical Propaganda. Medical propaganda has made multitudes of hypochondriacs, obsessed by morbid fears of cancer, high blood pressure, food, birth, death, and even life! Nature has wisely left the guidance of the vegetative functions of the body to appetite and instinct. Habitual thought about such processes as circulation and digestion deranges them and may ultimately cause organic disease. He who fears too much for his health loses it.—W. D. Gatch, M.D.: Education of the Public on Medical Subjects, The Journal of the Indiana State Medical Association, 33:346 (July) 1940.

CAN ORGANIZED MEDICINE ALONE STAY THE TIDE TOWARD SOCIALIZED MEDICINE?

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Up to five years ago the answer to the question, "Can organized medicine alone stay the tide toward socialized medicine?" would have been "Yes." Today it is "No."

Any discussion of this question must deal with medical ethics, medical economics, the present social order, and the profound changes this social order is now undergoing.

Some years ago, when I accepted the editorship of the Department of Public Health in *Southern Medicine and Surgery*, the objectives of the Department were expressed in our initial article, in part, as follows: (1) to prevent public health from competing with private practice—in other words, to keep public health out of curative medicine; (2) to encourage private practitioners to do more preventive medicine; (3) to enable the private practitioner and the health officer to see their mutual interdependence and their common objective—better health for all the people.

The American Medical Association defines state medicine in these words: " 'State Medicine' is hereby defined . . . to be any form of medical treatment, provided, conducted, controlled or subsidized by the federal or any state government, or municipality, excepting such service as is provided by the Army, Navy or Public Health Service, and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part."

Some weeks ago, in identical letters written to the American Public Health Association and to the American Medical Association, I said, in part: "We feel that treatment clinics conducted by local health departments are justified only on a basis of demonstration clinics; that when the period of demonstration has ended, the patient should be turned back to private practice, and, where necessary, the treatment of these patients be subsidized by the local, state, or national government and that the health department should confine itself to health education, sanitation and other preventive measures. What is your thought along this line?"

The reply from the American Public Health Association was so indirect that I am unable to quote from it. The spokesman for the American Medical Association was direct, and replied in part as follows: "Your statement in regard to treatment clinics conducted by local health departments seems to be in exact accordance with the position taken by the House of Delegates of the American Medical Association. It is the belief of many people that the most effective method of meeting governmental action in the health field is the expansion of medical society prepayment plans. At the present time these plans are providing medical care to close to a million persons."

After further correspondence with the American Public Health Association, I finally received a reply which gives some indication of the Association's attitude toward socialized medicine. Two paragraphs from this letter follow: "You are concerned with the danger of having the preventive aspects of the health officer's work deteriorate under a plan where he is responsible for curative medicine. I can cite some outstanding examples of instances where that definitely has not been the case.

"To put it in a nutshell, Doctor, it seems to me that it is a question as to whether the financial interests of the private practitioner are to be set first and in the center of the picture, or whether the general public welfare belongs there with the private practitioner finding his place when the public welfare is best served."

I agree that the welfare of the public comes first, and that is the reason I oppose socialized medicine. I believe that, contrary to my correspondent's implication, the interests of organized medicine and the interests of the public are, fundamentally, one and the same.

In support of my contention that therapeutic medicine is not the function of the health officer, I call two competent witnesses

Read before the Section on Public Health and Education, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

to the stand: Dr. W. A. McIntosh and Dr. J. F. Kendrick of the International Division of the Rockefeller Foundation. In 1939 they made a study of public health administration in North Carolina, submitting the report to the State Health Officer. In this report they said: "The role of health officer is in the field of preventive medicine, not therapeutic medicine."

In the *American Public Health Association News Letter* of February 18, 1943, the following statement was made, in regard to a meeting of the Association's Executive Board: "It was the sense of the Executive Board that the Association should further develop a policy concerning the relation of health officers to medical care and to seek to enlarge their concept of what their responsibility is toward providing medical services to the people." This is a somewhat involved sentence, but evidently this enlarged "concept" simply means that the health officer should add curative medicine to his program of preventive medicine.

When the average health officer enters the field of curative medicine, there are likely to be three unfortunate results: (1) poor medical service, (2) a poor preventive medicine program, (3) alienation of the general practitioner unless the health officer confines his work to the indigent class. The first two results need no comment. In the case of the third we might add that, as all health officers know, the good will of the general practitioner is essential to the success of any public health program.

The trend toward socialized medicine got its first great impetus from the reports of the committee known as "The Committee on the Cost of Medical Care," organized in 1927 and made up chiefly of sociologists, philanthropists, and economists, with a sprinkling of physicians. The reports of this committee covered the period of the depression, 1930 to 1933, and were heralded far and wide through the daily newspapers. The general tenor of these reports was an indictment of organized medicine for "failure to give adequate medical care to the indigent and the low income group." With the social order in chaos, it was the psychological moment for the committee to damn the doctors.

It is my opinion that no lay organization has ever shown the sound interest in good medical care for the underprivileged that organized medicine has had. "From the time of the organization of the American Medical Association in 1847, when it urged the creation of what is now known as public health services . . . the Association and its component state and county medical societies have never ceased to urge the creation of new health departments and the expansion of their services within the fields for which they were suited."

Organized medicine recognizes the fact that the *present plan* of medical care of the underprivileged is not satisfactory, and it is now encouraging experiments in the organization of medical services for this group. Among the principles which the American Medical Association has set down to govern the conduct of these experiments are the following:

"(1) All features of medical service in any method of medical practice should be under the control of the medical profession . . .

"(2) No third party must be permitted to come between the patient and his physician in any medical relation . . .

"(3) Patients must have absolute freedom to choose a legally qualified doctor of medicine.

"(4) The method of giving the service must retain a permanent, confidential relation between the patient and a family physician . . ."

Dr. W. A. Adson of the Mayo Clinic says: "The medical profession is conscious of social and economic changes and stands ready to cooperate with, and offer leadership to, state and federal agencies in the solution of medical problems. It further believes that better service can be rendered by offering advice and leadership to welfare agencies than by serving as a tool under political bureaus."

The surest way to avoid political control is for organized medical groups in every state, county and city to take the initiative in working out, in conference with the local health officer and welfare officer, a plan for better medical care of the underprivileged. This plan should then be submitted to the proper governmental unit.

If, as stated in the opening paragraph of this paper, organized medicine alone cannot stay the tide toward socialized medicine, from whom should it expect assistance? The answer is: organized public health.

In the dispute regarding socialized medicine, two parties are involved: organized

medicine on the one hand and the well meaning, misinformed public on the other. When organized medicine speaks, it speaks as an interested party and its testimony is invalidated to this extent. The public, ignorant of the issues involved, desires impartial testimony from some other competent source. Where can this impartial, competent testimony be found? In my opinion *only* from organized public health.

Public health officers can speak both the language of the physician and the language of the public. The health officer, knowing the value of organized medicine to society at large, and particularly to the public health program (a thing few, if any, laymen appreciate at all), and knowing better than anyone else the medical needs of the general public, is the person to whom the public is most likely to listen on the question of socialized medicine. If this be true, then it is organized public health, working in harmony with organized medicine, that *can* stay the tide toward socialized medicine.

I feel that it is the duty of every public health officer in this country from the Surgeon General down through the state and local health officers, as physicians and as public servants, not in the interest of organized medicine, but in the interest of the public weal, to stand up against state medicine.

Changes have already come, and further changes in the old order of private practice are necessary and are bound to come, but the health officer knows what the lay groups do not know—that complete regimentation and governmental control of private practice will not only lower the standard of the practice of medicine, but will retard medical research and medical progress to an incalculable degree. And following this, if indeed, it does not precede it, will be complete regimentation and absolute political control of organized public health itself. Therefore, speaking as a health officer, I feel that all health officers of every rank should mobilize their influence against all political groups which threaten to bring the practice of medicine under political control.

I call upon organized public health to stand shoulder to shoulder with organized medicine, that together they may stay the tide toward socialized medicine.

"Why stand we here idle?"

Abstract of Discussion

Dr. S. B. McPheeters, Health Officer of Wayne County (Goldsboro): The paper to which we have just listened deals with a vital matter—a matter that is of great consequence to our profession and our Society. I think that public and private medicine are natural allies. The members of both groups have had identical training in the same schools, and most public health officers have had some experience in private medicine. Discoveries that are made in medicine come from both groups and are in the possession of both; and both groups have a common aim —the prevention and cure of the defects and diseases the flesh is heir to.

Public health should care for those conditions that private agencies are not able to cope with. Unfortunately a large number of persons are unable to pay the cost of medical care. I think it is inevitable that society will provide supplementary funds or will assume complete costs in those cases. I think that in the channelling of those funds it is in accord with tradition and with natural relationships that, so far as possible, they should go to institutions staffed by private physicians, either on a part-time or a full-time basis, and either without pay, or on a fee or part-time pay basis. But I think that it is inevitable that salaried persons will have to carry a part of this weight.

If, for the curative care of the indigent, any organizations are set up outside the present public health or private agencies, those organizations will necessarily be set up in contempt or disregard of present agencies and will continue to exist in opposition to them. Therefore it seems to me that those administrations paid for by public funds should be channelled insofar as possible through private institutions and through the present public institutions. I believe that mutual consideration and cordial cooperation between public and private medicine is to the interest of both groups and to the interest of society.

Wishful thinking about vitamins.—We are told by a colleague in chemistry: "It is recognized already that one vitamin can and does cure mental derangements." This is stated without qualifications, while as a matter of fact mental derangements are due to a great diversity of factors, including heredity, mechanical and chemical trauma and cerebral ischemia. The value of the vitamin B complex in mental derangements seems to be largely limited to those accompanying advanced pellagra and chronic alcoholism. The 1942 faith and hope in universal health miracles from synthetic vitamin pills seem premature, if not immature. When I see our institutions for the feeble-minded and the insane evacuated and closed by giving any or all of our 1942 variety of vitamin pills to these unfortunate fellow citizens, I, too, will sing "Hosanna to the Highest." This scientist goes on to say: "Good diets, which mean an abundant supply of vitamins, promote intellectual keenness . . . There can be no doubt that much dullness on the part of school children . . . can be traced in part to lack of the proper kind of food and especially lack of enough vitamins." These are broad and important generalizations. But I know of no evidence that an ample ingestion of vitamin pills will materially improve the scholastic record of the millions of children and young adults in our schools. These assertions are just too good to be true. Human biology is not that simple.—Carlson, A. J.: Some Obstacles in the Path Towards an Optimum Diet. II, Science 97:414 (May 7) 1943.

ACIDOSIS IN NEWLY-BORN INFANTS

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Although investigations into the regulation of the acid-base balance in newly-born infants have been carried out in various laboratories for some years, the clinical applications of the findings do not seem to be generally appreciated. Following the publication a year ago of a paper by McBryde and Branning on acidosis in premature infants[1], pediatricians have become more aware of acidosis as a relatively common problem. It is the purpose of this paper to reemphasize this problem by presenting the histories of a group of newly-born infants found to be acidotic. We believe that closer regard to the acid-base balance in all newly-born infants will be rewarded by a reduction in the all too high incidence of neonatal deaths, many of which are now recognized to be due to acidosis.

The 7 infants whose histories are to be presented were born in the North Carolina Baptist Hospital and ranged in weight from 3 pounds, 6 ounces to 7 pounds, 9 ounces. According to the date of expected confinement, 3 were more than two weeks premature. When the weight standard of 5 pounds, 8 ounces is used as a criterion, 4 may be classed as "premature" or "immature." In general, the indications for obtaining a carbon dioxide combining power determination on these infants were failure to gain in weight, listlessness, feeble nursing, repeated dehydration, diarrhea, and poor color. In order to make a comparison of the carbon dioxide combining powers of these infants with those of normal thriving babies, a series of 10 infants who were doing well clinically were studied. The carbon dioxide combining powers of these infants, whose birth weights ranged from 4 pounds, 10 ounces to 8 pounds, 10 ounces, are shown in table 1. In this small series, it can be seen that the normal thriving infant has a carbon dioxide combining power somewhat below the accepted adult range but definitely above the levels of those infants who were doing poorly at the time the determinations were made.

Table 1.
Carbon Dioxide Combining Power in Infancy

NORMAL CONTROLS

Case	*Weight at Birth*	*Day of Life*	*CO_2 (vol. %)*
1.	4 lbs. 10 oz.	12	61
2.	5 lbs. 15 oz.	4	45
3.	6 lbs. 8 oz.	5	44
4.	7 lbs. 2 oz.	4	49
5.	7 lbs. 9 oz.	4	43
6.	7 lbs. 10 oz.	4	56
7.	7 lbs. 15 oz.	6	53
8.	8 lbs. 3½ oz.	4	38
9.	8 lbs. 6 oz.	5	47
10.	8 lbs. 10 oz.	4	45

PRESENT SERIES

Case	*Weight at Birth*	*Day of Life*	*CO_2 (vol. %)*
E. S.	3 lbs. 6 oz.	54	less than 5
H.C.	4 lbs. 11 oz.	23	33
R.W.	4 lbs. 14 oz.	13	29
M.P.	5 lbs. 1 oz.	8	25
S.H.	5 lbs. 9 oz.	9	17
R.M.	5 lbs. 12 oz.	3	26
I.D.	7 lbs. 9 oz.	4	37

It has been shown by several workers[2] that normal infants during the first few days of life have a relatively low carbon dioxide combining power—the so-called "acidosis" of the newly-born. This is usually not associated with any *p*H change in the blood, and resembles very closely the change of acid-base balance associated with fasting and dehydration, being essentially a relative increase of organic acids and a decrease in the carbon dioxide content of the blood. The average infant, with the onset of a regular and adequate intake of milk, adjusts this abnormality over a period of days.

The infants mentioned in this paper who had the lowest carbon dioxide combining powers were, from the standpoint of weight, either premature or immature. As Dr. McBryde has stated in his clinical report, it is in this group that pathological acidosis occurs most frequently, and most often escapes diagnosis; for the majority of these infants do not present the classical picture of acidosis.

The following factors greatly influence the

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.
From the Department of Pediatrics, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

1. McBryde, Angus and Branning, W. Sterry: Spontaneous Acidosis in Premature Infants, J. Pediat. 20: 549-554 (May) 1942.

2. (a) Branning, W. Sterry: The Acid-Base Balance of Premature Infants, J. Clin. Investigation. 21:101-105 (Jan.) 1942.
   (b) Hoag, Lynne A., and Kiser, William H., Jr.: Acid-Base Equilibrium of New-Born Infants; I. Normal Standards, Am. J. Dis. Child. 41:1054-1065 (May) 1931.
   (c) Marples, Eleanor, and Lippard, Vernon W.: Acid-Base Balance of New-Born Infants; II. A Consideration of the Low Alkaline Reserve of Normal New-Born Infants, Am. J. Dis. Child. 44:81-89 (July) 1932.

acid-base balance of the immature or premature infant: (1) Mineral deposition *in utero* takes place more rapidly in the last two months of gestation, and the mineral deficit in the premature infant must be replaced by a relatively greater intake of milk. (2) It is more difficult to satisfy this increased demand because the infant has a smaller capacity for intake, owing to a combination of poor sucking and swallowing reflexes, and a very small stomach. (3) Since these infants are immature in physiological as well as developmental status, it is not unlikely that the physiological mechanism of acid-base balance is also immature. (4) It is quite possible that in many infants the "acidosis" of the new-born period may be sufficient to cause a decreased appetite, so that, even though adequate food is offered, they remain in a dangerous state of alkaline deficiency.

Any adequate discussion of the acid-base balance of infants would have to include the intricate mechanisms of water balance, of food and mineral balance (which would also require a discussion of the influence of vitamins on metabolism), and, in fact, the whole mechanism of the stability of the *milieu interieur*. For practical purposes it is sufficient to state that the acid-base balance of infants is maintained by a complicated mechanism involving literally the entire body, and is influenced greatly by dietary intake and demands of growth.

If growth is not progressing favorably in a premature or even in a full term infant, the first thing to investigate is the acid-base balance. Frequently one will be amazed to find exceedingly low bicarbonate reserves in infants who show nothing more than the failure to gain or slight loss in weight. If the lowered base reserve is moderate, one can correct the deficit by adding alkali to the diet, or more dramatically and quickly by giving either Ringer's solution with added lactate or sixth molar sodium lactate solution (60 cc. per kilogram of body weight) subcutaneously. When acidosis is severe, one should give, without delay, adequate doses of either sodium bicarbonate solution or sixth molar sodium lactate solution, for, in severe acidosis, circulatory failure is imminent. Our practice is to give one third to one half of this dose intravenously, and the remainder subcutaneously. It is important to realize that normal saline will usually be insufficient to correct the abnormality. A word of warning should be given in regard to the rapid intravenous administration of sixth molar sodium lactate solution. The sudden, although slight, change in blood *p*H caused by rapid intravenous administration of alkali may produce tetany, with the possibility of death, in those infants who already have a relative deficiency in calcium. Since in the premature infant there is often a calcium deficit, the danger of tetany is real and should be thought of every time alkali is given intravenously. We believe that an added margin of safety can be produced by the intravenous administration of calcium gluconate a short time before beginning alkali therapy.

Case Reports

I. D., a white male, weighed 7 pounds, 9 ounces at birth. The delivery was normal. He lost 9 ounces in weight and became rather dehydrated. At this time, the carbon dioxide combining power was 37 vol. per cent, and 80 cc. of normal saline was given subcutaneously. The weight varied for several days and gradually began to rise on the ninth day. His condition at discharge was good.

R. M., a white male, whose birth weight was 5 pounds, 12 ounces, lost 6 ounces by the fifth day, was rather listless, and was taking breast milk poorly. The carbon dioxide combining power on the third day was 26 vol. per cent. Seventy-five cubic centimeters of sixth molar sodium lactate solution was given on the fifth day, with prompt improvement in the infant's appearance, weight and feeding. His weight when he was discharged on the eighth day was 5 pounds, 11 ounces.

S. H., a white female, weighed 5 pounds, 9 ounces at birth. She lost weight, and at the end of six days weighed 4 pounds, 15 ounces. She nursed poorly and seemed listless. On the fourth, fifth, and sixth days she had three to six watery green stools a day. Normal saline (60-80 cc.) was given daily from the fourth to the seventh day. There was a temporary gain on the seventh and eighth days, but she lost weight again on the ninth day. At this time the carbon dioxide combining power was 17. One hundred cubic centimeters of sixth molar sodium lactate solution was given on the ninth day, with prompt improvement in appearance, weight, and feeding. She was discharged in

good condition on the fifteenth day, weighing 5 pounds, 4 ounces.

M. P., a white female, was one of twins. Her brother did poorly from birth and died on the fourth day. The female twin's birth weight was 5 pounds, 1 ounce. She nursed poorly, and was weak and rather listless. Normal saline was given for dehydration on the fourth and fifth days. On the eighth day she weighed only 4 pounds, 12 ounces. The carbon dioxide combining power at this time was 25. Following the administration of sixth molar sodium lactate solution (110 cc.) there was prompt improvement in the general appearance of the infant. Her weight became stabilized at 4 pounds, 12 ounces, and she left the hospital, against advice, on the eleventh day.

R. W., a white male, weighed 4 pounds, 14 ounces at birth. His temperature was very unstable for the first four days, during which time he lost 6 ounces. After that his weight gain was very poor. He took feedings poorly and had to be fed by stomach tube. On the thirteenth day his weight was 4 pounds, 9 ounces. The carbon dioxide combining power was found to be 29 vol. per cent. Ninety cubic centimeters of sixth molar sodium lactate solution was given, and there was prompt improvement in color, activity, feeding, and weight. After a temporary weight loss on the fifteenth, sixteenth, and seventeenth days, 100 cc. of Ringer-lactate solution was given. The rest of his course was uneventful.

H. C.'s birth weight was 4 pounds, 11 ounces. By the seventh day he had lost 7 ounces. His weight remained constant until the eighteenth day, when there was a slight gain for three days. The infant nursed only fairly well. On the twenty-third day, the carbon dioxide combining power was 33. On the twenty-fourth day 120 cc. of sixth molar sodium lactate solution was given, and was followed by immediate improvement in feeding and weight.

E. S. weighed 3 pounds, 6 ounces at birth, and soon lost to 3 pounds, 3 ounces. He was quite feeble for the first two weeks, and his weight remained stationary. Several infusions of normal saline and Ringer-lactate solution were given. After two weeks he began to gain weight and his general condition improved, so that by the eighth week the infant was weighing 5 pounds, 9 ounces and seemed in excellent condition. At this time his weight again became stationary; he did not take his feedings well, and began to have abdominal distention. During the night of the fifty-first day he had several cyanotic spells. When he was seen about 4 a.m. his condition was very poor, but improved slightly after repeated injections of adrenalin and the use of oxygen. The carbon dioxide combining power obtained at 8 a.m. was less than 5 vol. per cent. One hundred and sixty cubic centimeters of sixth molar sodium lactate solution was started by bone marrow. When it was almost all in, the infant suddenly had a severe tetanic convulsion and died almost immediately, despite the injection of calcium gluconate. The calcium level in the blood taken for the carbon dioxide determination was reported after death to be 8.4 mg. per 100 cc.

Comment

A study of these abbreviated records brings out several points of clinical interest.

(1) The clinical picture of acidosis in newly-born infants is not that typically seen in older children. The typical Kussmaul type of breathing is not seen. There may be merely rapid, shallow respirations, or the respirations may not be significantly altered, and the diagnosis of acidosis may be suggested instead by failure to gain weight, listlessness, or resistant dehydration.

(2) The use of normal saline, even when repeated, apparently is not enough to bring an infant out of acidosis or to prevent its occurrence. This fact is particularly brought out by the cases of S. H. and H. C., in which repeated injections of normal saline had little effect but in which the administration of sixth molar sodium lactate solution resulted in prompt and dramatic improvement.

(3) It must be recognized that, particularly in premature infants, severe acidosis may occur after several days or weeks of apparent thriving. This is brought out by the case of B. S., who after the initial period of adjustment was felt to be almost ready for discharge when the sudden appearance of clinical acidosis resulted in death.

(4) Close attention must be paid to the calcium levels in these acidotic infants in order to prevent the occurrence of tetany when the acid-base balance is corrected. In the case of B. S., although the infant's condition was extremely critical at the time of

the administration of the sixth molar sodium lactate, it is our feeling that the infant expired in tetany. In this case the calcium level obtained after death on blood drawn for the original carbon dioxide determination was 8.4 mg. per 100 cc. This level is not remarkably low, but the sudden change of the blood *p*H may well have been enough to bring the ionized calcium level down to the tetany zone. Since this death occurred, we have made a practice of giving acidotic infants ½ to 1 Gm. of calcium as calcium gluconate intravenously before administering the sodium lactate.

(5) Ringer-lactate (Hartman's) solution may be used instead of sixth molar sodium lactate solution in those cases where the carbon dioxide level is difficult to obtain or where one does not feel that the infant's condition warrants the test. In the case of R.W. it will be noted that a temporary loss of weight followed the sharp improvement brought about by the administration of sixth molar sodium lactate solution. The infant's general condition remained good except for this loss of weight, so 100 cc. of Ringer-lactate solution was given without a carbon dioxide determination. This was followed by a steady weight gain. In general, however, it is always more desirable to determine the carbon dioxide combining power and to administer sixth molar sodium lactate (60 cc. per kilogram) to those infants found to be acidotic.

Summary

(1) Brief case histories of newly-born infants with moderate to severe acidosis evidenced by failure to gain, listlessness, persistent dehydration, feeble nursing, or respiratory irregularity, are presented.

(2) Treatment of acidosis in newly-born infants with sixth molar sodium lactate solution will result in prompt and dramatic clinical improvement.

(3) Before sodium lactate solution is given, calcium should be administered in order to prevent the occurrence of tetany.

Case-finding efforts in adolescence and early life should be directed toward persons having recent household contact with sputum-positive tuberculosis. Prolonged supervision of persons exposed during childhood is not indicated unless household exposure is continued or recurs in adult life.—H. L. Israel, M.D. and H. DeLien, M.D. Amer. Jour. Pub. Health. Oct. 1942.

THE UNSUSPECTED PREVALENCE OF INTESTINAL PARASITES IN NORTH CAROLINA

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ASHEVILLE

I have used the words "unsuspected prevalence" in the title of this paper because of the fact that I have found so many physicians who believe that we have few or no intestinal parasites in North Carolina. The survey done by the Rockefeller Foundation about 1914 has been well publicized[1]. As everyone knows, that survey showed a large amount of hookworm and other intestinal parasites at that time. The general impression seems to be that intestinal parasites have been wiped out since 1914.

While it is true that the incidence of intestinal parasites in North Carolina has been greatly lessened, we are far from the eradication of this menace. In fact, as I shall show later, the situation is just as bad as ever in regard to the *pinworm*, known technically as the Oxyuris or Enterobius vermicularis. Intestinal parasites are usually thought of as being a rural problem, but the pinworm is even more prevalent in cities than in the country.

Even if there were no intestinal parasites present in North Carolina now, this is the time for us to become familiar with the diagnosis and treatment of these conditions. At the Moore General Hospital near Asheville soldiers returning from North Africa have been found to be infected with several types of intestinal parasites. If conditions in all of North Africa are like those described in Egypt by Scott[2], it will be a miracle if a single man returns from this theater of operations without having suffered from one or more types of intestinal parasites. If conditions in the South Pacific are similar to those found in China by Winfield and his coworkers[3], there will be many thousands of men returning from the far east with parasites. In Africa and China surveys show that from 40 to 95 per cent of the population

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1. Rockefeller Sanitary Commission for the Eradication of Hookworm Disease. Second, Third, Fourth and Fifth Annual Reports, Washington, D. C., 1911, 1912, 1914, 1915.
2. Scott, J. A.: Infection With Common Roundworm, Ascaris Lumbricoides, in Egypt, Am. J. Hyg., Sect. D, 30:83-116 (Nov.) 1939.
3. Winfield, G. F.: Studies on the Control of Fecal-Borne Diseases in North China, Chinese M. J. 51:502-518 (April) 1937; 54:233-254 (Sept.) 1938.

is infected with intestinal parasites. The treatment of the soldiers infected in those countries and the prevention of spread from them to the general population will be a tremendous problem from now on.

Of the several intestinal parasites prevalent in North Carolina, the most wide-spread and, in my opinion, the most serious, is the pinworm. Until recently this parasite was missed more often than it was found in laboratory examinations. Most laboratories depend upon the feces specimen for the diagnosis of pinworm infection. Even with elaborate methods of examination the feces specimen is entirely inadequate for the diagnosis of pinworms. The ordinary type of feces examination will reveal pinworms in only about 2 per cent of the cases found by the cellophane swab technique. Of 539 children in Buncombe County from whom both feces specimens and cellophane swab specimens were received, pinworm ova were found on 84 cellophane swab specimens and in only 2 of the feces specimens.

A knowledge of the life history of the parasite is important in making the laboratory diagnosis of pinworm infection. About two weeks following the ingestion of the pinworm egg, the adult worm has developed fully and is ready to lay her eggs. The female worm is about ½ inch long and about the diameter of an ordinary straight pin. The male worm is much smaller. About two hours after the victim falls asleep the female worm crawls outside the rectum and lays from 10 to 20,000 eggs[4]. She then withers and dies. The best time to find the eggs is immediately upon awaking in the morning.

If the patient is in the hospital, peri-rectal scrapings with any blunt instrument are perfectly satisfactory, and indeed, preferable, for diagnosis. If one waits, however, until the patient has gone to the toilet or taken a bath, it may not be possible to find the ova. Since most of these patients are ambulant, some procedure which the patient or some member of his family can use is desirable. The most widely used instrument is the so-called NIH swab[5], which is simply a piece of cellophane put over the end of a glass rod and held in place by a small rubber band.

4. (a) Nolan, M. O. and Reardon, L.: Distribution of Ova of Enterobius Vermicularis in Household Dust, J. Parasitol. 25:173-177 (April) 1939.
   (b) Reardon, L.: Number of Eggs Produced by Pinworm Enterobius Vermicularis, and Its Bearing on Infection, Pub. Health Rep. 53:978-984 (June 17) 1938.
5. Folan, J. P.: The Preparation and Cleaning of the NIH Anal Swab Used in Diagnosis of Oxyuriasis, Pub. Health Rep. 54:1892-1895 (July 28) 1939.

I have found a modification of this swab somewhat more satisfactory. This modification consists simply of a piece of cellophane pasted on an end of a wooden applicator, with about ¾ inch of cellophane extending beyond the end of the applicator. The patient is instructed to fit this free end of the cellophane over the index finger and, with the finger, rub the cellophane about the rectum. Any sort of cellophane will work, but I have found the cheapest ten-cent store variety most satisfactory. The cellophane is snipped off with scissors and placed on a microscopic slide, with a drop of water below and above it and a cover slide on top. The pinworm ova are very easy to find under the low power of the microscope. Seven specimens must be examined before one can be reasonably sure that a patient is not infected with pinworms.

Even though the method of diagnosing a disease is known, a diagnosis cannot be made unless the disease is suspected.

I am sure that all of us have seen numerous cases of pinworm infection without suspecting its presence. Until recently we were told to look for itching about the rectum. Few patients will come to your office complaining of itching about the rectum; but they will come with the complaint of nervousness, lack of appetite, wetting the bed, or restlessness in the sleep. I had one patient referred to me recently who had been taken to the hospital for an appendectomy. He was found to have a tapeworm, and this was removed by appropriate medication. Within about a month the symptoms of appendicitis reappeared. After talking with the boy's father I found that he had all the usual symptoms of pinworms—restlessness in the sleep, nightmares, poor appetite, vague pains in the epigastrium, and considerable nervousness. Further questioning showed that all other members of the family had one or more of the above symptoms, but to a lesser degree. This boy has been treated for pinworms and has not as yet had any return of his abdominal symptoms.

I call to mind another recent case in which both pinworms and Ascaris were present in large quantities. This patient, a white man 38 years of age, came to my office after a cellophane swab taken on one of his children in a school survey was found to be positive. The man had been unable to keep his job at the blanket factory because his stomach bothered him, and he was too weak to work.

He had all of the usual symptoms of pinworms noted in the above case, and in addition a feeling as though something were moving in the epigastrium. His hemoglobin was 72 per cent, his red blood cells 3,250,000; there was a mild eosinophilia (7 per cent). Incidentally, this blood count is typical in pinworm infection as well as in Ascaris and hookworm infections. His children, particularly the youngest—aged 6—, also had the usual symptoms of pinworm infection. They were particularly bothered by a poor appetite and great difficulty in sleeping. The insomnia was, in fact, the chief factor to which the patient attributed his weakness. After this family had been treated for three weeks the patient was having difficulty in paying his grocery bill because they were all so hungry. He stated that this was the first time in several years that the entire family had been able to sleep well. Now, after three months, he has gained weight, is back on the job and looks and feels like an entirely different person, even though from a laboratory standpoint his infection with Ascaris and pinworms is not completely eradicated as yet.

In an effort to determine the incidence of pinworm infection, I have surveyed three elementary consolidated schools in Buncombe County, with a single swab taken on each pupil. In the first school, Barnardsville, located about twenty-two miles north of Asheville, 274 children were examined. These examinations were made either by myself or by one of my nurses at the school. Although the actual taking of the specimens was presumably well done, the examinations were made rather late in the morning, since most of the children were out of bed by 7 o'clock and school does not open until 9:30. Even so, 45 children—16 per cent—were found to have pinworms.

The second school, Fairview, is fifteen miles southeast of Asheville. In this school the method of taking the specimen was explained to the entire student body at one time. At Fairview 290 children were examined by single swabs taken by the child himself. There were many poor specimens and many swabs which probably had not been used at all. Even with this handicap 49, or 17 per cent, were found to be infected with pinworms.

The third school, Candler, is about ten miles southwest of Asheville. In this school 249 specimens were taken by the children themselves. Explanation of the method was given to each individual class. A considerably better group of specimens was received. In this group 45, or 18 per cent, were found to be infected with pinworms.

Intestinal Parasites Found in Survey of Three Schools in Buncombe County

School	*Feces Specimens*	*Positive for Ascaris*	*Per cent Positive*	*Cellophane Specimens*	*Positive for Oxyuris*	*Per cent Positive*
Barnardsville	274	55	20%	274	45	16%
Fairview	311	38	12%	290	49	17%
Candler	267	14	5%	249	45	18%

Note: Approximately 1 per cent of the children at all three schools were found to have hookworm infection.

These three schools represent vastly different types of rural population. The great majority of the people at Barnardsville are poor, living on small farms, and having very little medical attention available. The nearest doctors are about ten miles away. The Fairview group are well-to-do farmers and have medical attention close at hand. The Candler group includes well-to-do farmers and a large number of employees of the mills at Enka and Canton. These employees, on the whole, represent the better class of working people. City water and sewage disposal facilities are available to many of them, and a great many others have their own private water and sewerage systems.

The uniform incidence of pinworm infection in various parts of the county is in contrast to the incidence of infection with other intestinal parasites. At Barnardsville, the school in the poor rural district, where 16 per cent of the children examined were found to have pinworm, 55, or 20 per cent, were infected with Ascaris lumbricoides. Although the state law concerning sanitary toilets has been well enforced in this area, considerable soil pollution is known to exist, due to the careless habits of the younger children, even in those families who have a good privy.

In the second school, Fairview, where 17 per cent were found to have pinworms, only 12 per cent were infected with Ascaris. Although Fairview is also a farming community, the personal hygiene of the people and the medical attention available are both better than at Barnardsville.

The surprising school was Candler. Here only 14 of 267 feces specimens examined showed the presence of Ascaris. This is an infection rate of only 5 per cent and yet 18 per cent of the children examined in this school were infected with the pinworm. This region offers the most encouraging evidence of what can be accomplished in getting rid of intestinal parasites. Approximately twelve years ago a survey was made in this area, using feces specimens only. This was an unpublished report and the exact figures have been lost, but the nurse who brought in the specimens in this survey tells me that between 40 and 50 per cent of the children had some type of intestinal parasite, most of them Ascaris. Confirming this data is the study by Dr. Candler Willis[6] of Candler, published in 1940 in the NORTH CAROLINA MEDICAL JOURNAL. He examined patients in this farming region for several years. Undoubtedly his series were a selected group who came to him because of illness. Of 400 patients whom he examined, 391 were found to have some type of intestinal parasite—usually Ascaris or hookworm. He found only a few pinworms, but since only a feces examination was done, this finding does not mean much. Dr. Willis has treated numerous patients, and his findings have stimulated numerous others in this community to seek treatment.

Western North Carolina is comparatively free of intestinal parasites other than Ascaris and pinworms. The Ascaris is a hearty worm. Its ovum is well protected by a hard outer shell which makes it possible for it to live through the comparatively long winters of the mountains and to survive on the hard-packed clay soil. The hookworm embryo is not so hearty and can live in the mountains only during the six warmer months of the year and it has a comparatively difficult time on the hard clay soil. In all sections of the county where examinations have been made, the incidence of hookworm infection has been approximately 1 per cent. In over 2,000 feces specimens examined during the past three years, only two tapeworms have been found. The specimens do not reach the State Laboratory in time to receive an adequate examination for Strongyloides, but I have found several recently in specimens examined locally.

6. Willis, C. A.: It May Be Helminths. North Carolina M. J. 1:613-615 (Nov.) 1940.

I realize that most of you present today are more interested in treatment of the individual patient than in statistics. The treatment of Ascaris, hookworm, and tapeworm is comparatively easy and any of the recognized techniques may be employed, provided sufficient care is exercised. It cannot be emphasized too strongly, however, that the treatment is dangerous and must be used with care. The treatment for pinworm infection is comparatively complicated and time does not permit its inclusion in this paper. This has been discussed in another article to be published in this Journal[7].

Discussion

In presenting this paper I have attempted to support two views which I hold.

The first is that the pinworm is much more prevalent than any but the most recent literature would lead us to believe. I believe that this point has been adequately demonstrated in the surveys of the three schools and in the case histories presented. These case histories are not unusual. If time permitted I could duplicate them at least a hundred times.

My second point is that intestinal parasites can be eliminated by treatment combined with a fairly good personal hygiene. I believe that the Candler surveys demontrate this fact well. A survey in a similar area at Weaverville was not completed in time to include the figures in this paper, but that survey is demonstrating a similar encouraging trend.

My health district does not include the city of Asheville, and so I have had opportunity to survey rural areas and small towns only. Surveys done by Brown[8] in Charlotte and Chapel Hill, by Cram[9] and her coworkers in Washington, D. C., by Kuitunen-Ekbaum[10] in Toronto, and by other workers in Tampa, New Orleans, and Manila all indicate that the urban rate of infection with pinworms is at least as high as I have found it in rural areas. The incidence of infection in institutions, particularly orphanages, is extremely high—in some places 90 per cent.

7. Sisk, W. N.: The Modern Treatment of Pinworm Infections. Presented before the Health Officers' Section of the North Carolina Medical Society, May 10, 1943.
8. Brown, H. W., Sheldon, A. J., and Thurston, T.: The Incidence of Pinworm Infection in North Carolina. South. M. J. 33:922-925 (Sept.) 1940.
9. Cram, E. B. and Reardon, Lucy: Studies on Oxyuriasis: Epidemiological Findings in Washington, D. C. Am. J. Hyg. Sect. D, 29:17-24 (Jan.) 1939.
10. Kuitunen-Ekbaum, E.: Intestinal Parasites in Children in Toronto. Am. J. Dis. Child. 60:518-525 (Sept.) 1940.

While it is true that all of these parasites are more prevalent in the lower economic groups, they are no respecters of persons. Particularly is this true of the pinworm. I have found this infection in numerous families who are well off financially and who are quite clean in their personal habits.

Summary

1. We are likely to have a considerable increase in intestinal parasitism with the return of our military forces from foreign soil. Almost all of the areas into which our soldiers have been sent are known to be infected with parasites.

2. The feces specimen has been found to be a very unsatisfactory method for diagnosing pinworm (Oxyuris vermicularis) infection. Both feces specimens and cellophane swab specimens from 539 children were examined, and pinworm ova were found on 84 cellophane swab specimens and in only 2 of the feces specimens.

3. The cellophane swab, simple and satisfactory for the diagnosis of pinworms, has been described.

4. The symptoms most frequently found in pinworm infection are restlessness in the sleep, nightmares, vague pains in the epigastrium, nervousness, and at times symptoms of appendicitis.

5. Surveys from three different schools at widely separated parts of Buncombe County showed the incidence of infection with pinworms to be about 17 per cent.

6. In contrast to the uniform rate of infection with pinworms, the incidence of infection with Ascaris was found to be much lower in those areas where good medical attention is available. Twenty per cent of the children in the most poverty-stricken area were found to be infected with Ascaris, while only 5 per cent were found to be infected in the Candler area, where active treatment has been given for several years.

7. Encouraging results have been obtained in the treatment of Ascaris, but more satisfactory treatment is urgently needed for the pinworm.

8. The pinworm is a serious problem, present in all of North Carolina, and one for which a better means of control is urgently needed.

Abstract of Discussion

Dr. R. E. Fox: I was at one time county health officer of Buncombe County. About 1931 we got the State Laboratory of Hygiene to make feces examinations on the children in Candler School who were 10 per cent or more underweight. Of the 200 children in the school there were at least 100 that were 10 per cent or more underweight, and the State Laboratory reported that 50 per cent of these had some type of intestinal parasite.

"DE HUMANI CORPORIS FABRICA"

(1543-1943)

Camerado, this is no book
Who touches this touches a man
—*Walt Whitman*

JOSIAH C. TRENT, M.D.

The year 1943 marks the quadricentennial of the publication of Vesalius' DE HUMANI CORPORIS FABRICA (The Fabric of the Human Body), the first treatise on anatomy based on dissection of the human body. World War II has prohibited any large scale celebration of this event, just as in 1914 World War I stopped the plans for the observance of the author's four-hundredth birthday. In spite of the war, however, several Vesalius festivals have been held throughout the country.

Any re-evaluation of the position of the FABRICA in the history of medicine enhances rather than lessens its importance. Today we are inclined to forget that four hundred years ago the science of human anatomy was non-existent and medicine was practiced empirically for lack of a rational anatomical basis. Galen, who learned his anatomy from pigs, dogs and monkeys, had remained an unshakable authority for centuries because his medical philosophy coincided with that of the church, and any challenge to his teachings was, therefore, heresy. The overthrow of Galenical authority and the opening of the door to medical progress can be attributed almost entirely to one man and his book, Andreas Vesalius and his DE HUMANI CORPORIS FABRICA.

Vesalius was born December 31, 1514, in Brussels—the last of a long line of medical men. At an early age he acquired a knowledge of the classical languages at the University of Louvain, and subsequently attended the University of Paris, where he studied medicine under Sylvius, Guinter of Andernach, and Jean Fernel. In this stronghold

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Fig. 1. Andreas Vesalius as Professor of Anatomy.



Fig. 2. The title page of De Humani Corporis Fabrica (Author's collection).

of Galenism he broke with tradition by performing numerous dissections with his own hands, and gained an intimate knowledge of the human skeleton by robbing gallows and graves. On returning to Louvain in 1537 he conducted the first public anatomical demonstration held in that city for eighteen years. His Latin translation of the ninth book of Rhazes was published in February of that year. This extremely popular book was probably instrumental in securing his appointment later as Professor of Anatomy at Padua.

While *en route* to Italy to complete his medical education he stopped in Basel, where a second edition of his PARAPHRASE OF RHAZES was brought out in March, 1537. It was undoubtedly at this time that he met Oporinus, the printer of the FABRICA. From Basel he proceeded to Venice, and received his clinical training in the hospitals of that city. There he met Loyola, who later founded the Jesuits; Servetus, a fellow student, who discovered the pulmonary circulation; and Stephan Calcar, the artist, a pupil of Titian's and illustrator of the FABRICA. After a short sojourn in Venice Vesalius transferred to Padua to complete his medical course. Shortly after receiving his M.D. degree at the age of 23 he was made Professor of Anatomy there. This was the first chair of anatomy ever created.

Vesalius immediately reorganized the course in anatomy so that he himself dissected the bodies, demonstrated the organs and did the lecturing. With the aid of Stephan Calcar he brought out a set of six anatomical charts for the aid of the student, which were so popular and so widely used that they were thumbed out of existence. Today only two copies of these tables are known. Vesalius realized the value of pictures in anatomical instruction, and projected a great illustrated anatomical text to embrace the whole fabric of the human body. He made numerous dissections and engaged Stephan Calcar and his assistants to make the drawings. He must have had much trouble with the artists, for he later wrote that "they had rather draw Venus and the three Graces than a foul smelling anatomical dissection." Eventually in August, 1543, his work was complete. The manuscript, draw-

ings and woodcuts were forwarded to Oporinus, the printer in Basel, with a letter admonishing him to employ the greatest care in the printing, using only the best paper. Vesalius himself later went to Basel and personally supervised the work until it was completed.

The book aroused violent outcries and bitter invectives from the Galenists, chief among them Vesalius' old teacher and friend Sylvius, but the truth was incontrovertible. The book gained wide acceptance and was extensively plagiarized.

Vesalius' life might well have ended with the publication of the FABRICA, for except for a second revised edition of this book printed by Oporinus in 1555, he produced nothing more. The last twenty years of his life were spent in the Spanish courts of Charles V and Phillip II. In 1564, while returning from a pilgrimage to Jerusalem, he was shipwrecked and died on the Island of Zante before he could again assume the chair of anatomy at Padua which had been tendered him.

The FABRICA, folio in size, is a masterpiece of bookmaking. Written in Latin, it contains over seven hundred pages, divided into seven books dealing with (1) bones and cartilages, (2) ligaments and muscles, (3) veins and arteries, (4) nerves, (5) organs of nutrition and generation, (6) heart and lungs, (7) brain and organs of sense. It contains over two hundred and fifty anatomical woodcut figures, remarkable for their beauty and accuracy. The title page, itself a work of art, depicts Vesalius demonstrating the abdominal viscera of a female cadaver to a crowd of students and townspeople. Truly, "the dissections and the plates are the book."

In Osler's words, "The FABRICA remains a monument of human effort and one of the greatest in the history of our profession. In it Vesalius really described the body as we know it, for the first time fully and for the first time accurately."

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APPROVED LABORATORIES IN NORTH CAROLINA

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During the past two years more than sixty laboratories in the state of North Carolina certified for the serological diagnosis of syphilis have been twice visited and appraised. This visit, in one sense a tour of inspection, and in another a means of establishing personal contact between the State Laboratory and local laboratories, accomplished both tangible and intangible results. These included pleasant associations with the technicians, with superintendents of hospitals, with health officers, and with other physicians interested in laboratories. Occasionally definite instructions on laboratory procedures were offered.

Objective serologic tests give some idea of the kind of work done in laboratories. The use of this method as the sole criterion of the standard of work is open to serious objections. For example, technicians take special care with these tests, instead of introducing them into their daily run of routine specimens. If there is more than one technician employed, the senior technician or supervisor is apt to run the tests herself, whereas she is seldom so much interested in routine serology. For this reason, and others, laboratory inspection has been instigated. A comparison of the findings on the first and second inspections has given not only an indication of the equipment of the laboratory and the work of the technicians, but also of the effort made to improve and to do better work. The laboratories were graded on technical work, quantity and conditions of equipment, space, light, refrigeration, and sterilization and cleaning facilities.

Nineteen laboratories showed definite improvement the second year; thirteen of these were in small hospitals, in three of which the technicians had succeeded in getting additional educational training. Twenty-six laboratories showed no improvement over the year before, nor had certain remediable situations been cleared up (table 1). Without exception, the smaller laboratories in doctors' offices and small hospitals made a better showing than those of the larger institutions.

Most of the laboratories made an attempt

Table 1
Laboratories Showing No Improvement on Second Inspection

Registration Number of Laboratory	*Remediable Conditions*
4	—Laboratory crowded. Too much non-technical work required of technician.
40	—Light very poor. Sink too small.
65	—Laboratory extremely dirty and in need of paint. Technician not especially careful.
57	—Laboratory too small—four people working in space 9 x 7 ft.
33	—Laboratory needs space, cleaning and paint.
6	—Work continues to be below standard.
31	—Very dark.
9	—Technician claims to be handicapped by lack of assistance.
35	—Light very poor.
46	—Laboratory poorly equipped.
56	—Light very poor. Technician needs assistance badly.
73	—Light very poor.
10	—Light very poor. Laboratory in great need of space, light and paint.
14	—Laboratory runs no controls for serologic tests.
43	—Laboratory greatly in need of paint and equipment.
52	—Laboratory needs equipment, especially water bath.
39	—Very poor equipment.
68	—No hot water in laboratory. Distilled water unsatisfactory. Technician needs space.
16	—Work continues to be below standard.
17	—Very small laboratory with tiny sink. Technician does not always run controls.
18	—Laboratory does not run controls.
22	—Light very poor. Technician needs assistance badly.
24	—Technician needs assistance badly.
64	—Ice box needed badly.
42	—Laboratory poorly equipped and has very bad light. (This laboratory has made no effort to acquire new equipment.)
27	—Needs additional equipment, including electric water bath.

to improve their basic equipment between the first and second inspections. Although laboratory apparatus is difficult to acquire, most institutions can obtain the necessary priority rating, if the trouble is taken to fill out the complicated forms required by the government. Many of the laboratories have good equipment which is used inefficiently, while in others some technicians show inventive minds and improve their equipment with home-made items.

Table 2 shows the rating of 63 laboratories approved this year. It is our hope that the columns headed "Poor" and "Very Poor" will be entirely eliminated in the near future.

Most of the laboratories do not take their contract with the State Laboratory of Hygiene very seriously. This contract is a legal document which must be signed by a physician licensed to practice in the state of North Carolina, who thereby assumes responsibility for the ethical conduct of the laboratory. While such a person need not be the director of the laboratory, he should be connected with the institution. These contracts must be kept up to date, and the State Laboratory of Hygiene should be notified each time changes in personnel occur, so that the new technicians can be interviewed and the records kept up to date.

Table 2
Survey of Ratings of 63 Laboratories

	Excellent	*Good*	*Fair*	*Poor*	*Very Poor*
Technical work	16	30	17	0	0
Equipment	20	23	16	4	0
Light	18	26	10	5	4
Refrigeration	31	21	8	0	3
Sterilizing facilities	13	26	19	5	0
Cleaning facilities	16	20	17	10	0
Space	21	23	13	6	0
FINAL RATING	14	28	19	2	0

Technical work is constantly changing; the field is widening, and new information should reach technicians regularly. Technicians should consult with each other and should have some means of keeping their information up to date. It is part of the educational program of the State Laboratory of Hygiene to initiate conferences and training courses for technicians throughout the state, so that those laboratories which remain on the approved list will have well informed technicians.

The first of these courses will be given within a few months, using the facilities of one of our educational institutions, possibly the University of North Carolina at Chapel Hill. At that time it is planned to have a person trained in the Army course in tropical medicine present some of the problems in laboratory diagnosis which will arise with the return of soldiers from the tropics to North Carolina. New laboratory techniques will also be demonstrated. The State Laboratory of Hygiene requests suggestions from physicians and others interested in laboratory work for suitable times and places for such conferences.

It is also the future intention of the State Laboratory of Hygiene to approve local laboratories for tests other than serologic blood tests for marriage, and to do this the laboratories must be equipped and the technicians trained to do the kind of laboratory work which will give better service to the physicians in the state.

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DECEMBER, 1943

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS

Once a year secretaries of constituent state medical associations and editors of state medical journals are the guests of the parent organization at a conference held at the American Medical Association headquarters in Chicago. The purpose of this meeting is the discussion of problems of common interest. Naturally the predominant note continues to be the effect of the war on medical practice and medical education.

The Conference was held this year on November 19 and 20. It was called to order by Dr. Roger I. Lee, Chairman of the Board of Trustees of the American Medical Association, who welcomed the group to Chicago. The first address was by Dr. James E. Paullin, President of the A.M.A., who discussed various problems being considered by the Post-War Planning Committee. Dr. George F. Lull, Deputy Surgeon General of the United States Army, spoke on the "Problems Relating to Assignment of Duties of Military Surgeons". The rapid expansion of the army's medical corps from 1250 doctors at the beginning of the war to more than 40,000 at present has presented plenty of problems for solution, and as General Lull said, "At least 39,350 of these doctors are a little prima-donnaish." As a rule, General Lull observed, the men who had responsible positions in civilian life were given responsible positions in the army; "water seeks its own level."

"Hospital Training of Medical Graduates" was discussed by Dr. Victor Johnson, Secretary of the Council on Medical Education and Hospitals. His address, together with Dr. Paullin's, is the subject of a separate editorial.

After a delightful luncheon at the Kungsholm, the afternoon session was addressed by Dr. Herman Kretschmer, President-Elect of the American Medical Association, Dr. Harold S. Diehl, Dr. Walter F. Donaldson, and Dr. Louis H. Bauer. Dr. Diehl's subject was the "Cooperative Relationship of Procurement and Assignment Service and State Medical Associations". Dr. Donaldson spoke on "The War Participation Committee as a Coordinating Agency".

Dr. Diehl reminded us that between six and seven thousand doctors are still needed for the army. One disappointment has been the small number of women physicians who have volunteered. After the great hue and cry raised by the lady doctors who wanted to be given a chance at the Huns and the Japs, it was estimated that at least six hundred would volunteer; but so far only thirty-eight have been commissioned.

Dr. Diehl stated that there had been twenty-one hundred physicians relocated to date.

Dr. Donaldson urged that each state should have a separate Committee on War Participation to cooperate with the central committee (1) in helping the Procurement and Assignment Service round up more volunteers in the states that have not yet filled their quotas; (2) in maintaining the war records of the members of the state societies;

and (3) in planning some recognition for the wives and families of doctors in service. Obviously, North Carolina does not need such a committee for the first named objective; however, it would be a good idea to have a systematic record of the service rendered by our men in the armed forces, and some recognition of their families would be quite fitting.

Dr. Louis H. Bauer, Chairman of the Council on Medical Service and Public Relations, explained the work of the Council.

The Editors' dinner meeting was held at the Palmer House, and was presided over by the editor of the NORTH CAROLINA MEDICAL JOURNAL. The only set address was by Dr. Austin E. Smith, Secretary of the Council on Pharmacy and Chemistry of the American Medical Association. He gave a clear and concise exposition of the work of the Council. This was followed by a rather stormy discussion which lasted nearly two hours, but which, it was felt by nearly all present, did much to promote better feeling between the state journals and the Cooperative Medical Advertising Bureau.

For several years there has been a feeling on the part of the editors and business managers of a few state journals that their publications were not getting the volume of advertising to which they were entitled. Apparently this feeling was based upon two suspicions: one, that the Council on Pharmacy was too strict in its criteria for approving new remedies submitted to it; the other, that the Cooperative Medical Advertising Bureau was not diligent enough in soliciting advertisements for state journals, and that it gave the *Journal of the American Medical Association* preference over other journals. A few of the state journals have withdrawn from the Cooperative Bureau and depend upon their own business managers to secure advertising. From the open discussion, however, and still more from the comments after the meeting adjourned, it is apparent that the great majority of editors and secretaries are satisfied with their arrangement with the Cooperative Bureau. The appointment this year of two additional state journal editors to the Committee on Advertising should help bring about a better understanding between the Cooperative Bureau and the state journals.

SOME MEDICAL PROBLEMS CREATED BY THE WAR

In the Annual Conference of Secretaries and Editors a number of medical problems that have been created by the war were brought to light. For some of these, solutions were offered; others were left on the knees of the gods. Among the questions raised by Dr. Paullin for consideration were:

1. Civilian medical care. This country loses more than 2000 doctors every year by death. With virtually all medical graduates being absorbed by the defense forces, the care of the civilian population rests more and more heavily upon those left behind; and these are chiefly the elderly and the physically unfit. Dr. Morris Fishbein stated in conversation that there has been since Pearl Harbor an appreciable increase in the number of doctors dying of coronary heart disease.

2. Post-war placement of young medical officers in civilian practice. After demobilization, what provision will be made for the 20,000 or more doctors in service who will not have done civilian practice, and who will have to find their place in the medical program? Many of these young men will have had only nine months' internship. A Post-War Planning Committee is expected to study the question and offer recommendations.

3. Post-war relocation of doctors. It is to be expected that after the war, there will be a number of doctors who will wish to be relocated or to change the character of their work. Medical care for rural communities is an important consideration. To study this and the preceding question, Dr. Paullin thinks each state should have a local Post-War Planning Committee to work with the central committee. "Many problems," he concluded, "are to be solved by unregimented free thinking."

To emphasize the importance of hospital training for medical graduates, Dr. Victor Johnson reminded us that an internship is required in twenty-two states for licensure, and in six states for a degree. Acceleration has affected all fields of medical education. Whether for better or worse, the long summer recess has been eliminated, and an aggregate of only four or five weeks of vacation time is scattered throughout the year. Two other factors count much more heavily in reducing the standards of medical educa-

tion: (1) the reduced pre-clinical training; and (2) shortening the internship to nine months. It will be necessary, Dr. Johnson stated, to make abundant provision for residencies, for refresher courses, and for graduate education generally. Unless such provision is made, we must inevitably expect a poorer quality of medical care.

Dr. Harold S. Diehl, speaking for the Procurement and Assignment Service, touched a sore spot when he said that he realized there had not been an altogether equitable distribution of interns and residents among hospitals; but that the distribution had been made as fairly as possible, and that no hospital had been recommended for internship unless it was accredited. The knowledge that a second or third choice hospital is "accredited," however, is cold comfort to the senior medical student who has had a coveted appointment in some well-known institution withdrawn because of the curtailment of internships.

* * * *

THE COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

At its June meeting the House of Delegates of the American Medical Association, in response to resolutions from a half-dozen state societies, created a Council on Medical Service and Public Relations, composed of the President, the Secretary, the immediate Past-President, a member of the Board of Trustees, and six members of the A.M.A. at large. Dr. Louis H. Bauer of New York was named as Chairman of this Council. A statement of the general policies of the Council is to be found in the November issue of the NORTH CAROLINA MEDICAL JOURNAL. At the Annual Conference of Secretaries and Editors, Dr. Bauer reviewed the work of the Council. Thus far its chief task has been that of getting organized. Dr. G. L. Kelly, Dean of the University of Georgia School of Medicine, has just been selected as secretary, and is expected to take over his duties on January 1.

Naturally there has been some interest expressed as to the relation between the Council and the National Physicians Committee, since their aims are so similar. On Saturday, November 20, after each of these groups had had an all day session, they held a joint dinner meeting at the Palmer House, and came to a full understanding as to their respective functions. Two members of the National Physicians Committee, Dr. John Fitzgibbon of Oregon and Dr. E. J. McCormick of Ohio, were selectd to serve on the Council; and Dr. T. J. McGoldrick of New York, who is also a member of the National Physicians Committee, was chairman of the Reference Committee on Legislation and Public Relations, which shaped the resolution creating the Council. These three men insure a close liaison between the two groups. Certainly there was complete harmony of opinion in the joint meeting; and it is obvious that there is ample work for the membership of both groups—and for the entire membership of the American Medical Association.

It is increasingly apparent that the public are satisfied with their doctors as individuals, and that, in spite of the persistent propaganda directed against it, they think highly of the American Medical Association; however, they want and expect some plan or plans for lightening the burden of prolonged illness or of surgery, with attendant hospitalization. Both the National Physicians Committee and the Council on Medical Service and Public Relations are fully aware of this demand, and are together striving to work out a satisfactory solution to the problem.

The National Physicians Committee has had the most active and the most fruitful year in its four-year existence. It remains to be seen how successful its campaign against the Wagner-Murray-Dingell Bill will prove, but there is no doubt that widespread interest has been aroused; and with the increase in interest there has been a growth of intelligent opposition. This is evidenced by the torrent of editorials in leading newspapers and magazines condemning the bill; by the resolution of the American Bar Association protesting against it; and by the fact that the Chambers of Commerce of at least two states—Indiana and Pennsylvania—have issued booklets for general distribution warning the public of the danger inherent in the Wagner-Murray-Dingell Bill. Whatever the fate of this bill, however, the forces that are behind it will still remain to be contended with. With victory apparently in sight, let us not make the mistake of laying down our arms too soon. With the newly created Council and the National Physicians Committee fighting side by side, let us continue the war against totalitarianism in our country.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

A 25 year old white, unmarried female, a student nurse by profession, was admitted to the hospital complaining of pain in the loin which radiated to the lower abdomen and labia.

Her present illness began four and a half years ago, prior to which time she had always been in good health. Her original illness was diagnosed as "pyelitis", which cleared up after five days of bed rest. Six months later she had a similar attack, when her doctor told her the urine was "loaded with pus." She was treated with urotropin and was well enough to resume her work after ten days, although she has had nocturia, urinary frequency, and occasional hematuria ever since.

Three and a half years ago she had her first attack of "renal colic," with severe cramping pain in both loins which was relieved only by morphine. X-rays and pyelograms showed stones in the pelves of both kidneys. After ten days the first three stones were removed through the cystoscope, and she passed another before she left the hospital. During the following year two nephrostomies were performed at intervals of four and five months to remove stones from the pelvis of each kidney, and seven months after the second of these operations a transabdominal left uretero-lithotomy was performed to remove a stone impacted at the pelvic brim. This stone was found to be composed of xanthine. Treatment consisted of a low purine, alkaline ash diet and citrocarbonate, one ounce four times a day. About four months after this treatment was started (that is, about two and a half years ago) she had an alarming episode when it was "hard to catch her breath." She had tingling in her fingers and toes, pains in her muscles and joints, and "drawing of the hands." She also lost her appetite, had a good deal of nausea, and vomited occasionally. Vomiting occurred most often after taking food. All these symptoms stopped with the administration of calcium gluconate, but her appetite has remained poor and she has lost about twenty-five pounds in weight since the onset of symptoms. Her teeth have given considerable trouble; she has had five extractions and all her molars and premolars have had to be filled.

One year ago right nephrolithotomy was again necessary. The stones removed were composed of calcium phosphate. At this time her hemoglobin was 13.8 Gm. and there were 10,500 white blood cells with 64 per cent polymorphonuclears. The urine varied in reaction from alkaline to slightly acid; the *p*H on two occasions was 8 and 6.6. There was an occasional trace of albumen, about 25 white blood cells per high power field with occasional clumps, and a few red blood cells. There were also amorphous crystals. A phenolsulfonphthalein test showed 52 per cent of the dye to be excreted in two hours. Urine cultures grew on repeated occasions Bacillus pyocyaneus, Staphylococcus aureus, and beta and gamma streptococci. Blood chemistry showed the nonprotein nitrogen to be 28 mg. per 100 cc., carbon dioxide combining power 44 volumes per cent, calcium 12.4 mg. per 100 cc., and phosphorus 3.7 mg. per 100 cc. Treatment consisted of sulfacetimide, prohydron, vitamin B and an acid ash diet. This treatment has been continued during the past year, when she has been under observation as an out-patient. She has had several attacks of "colic", one requiring one-half grain of morphine for relief, and has passed numbers of stones.

Except for the fact that she has a cousin who has had several kidney stones removed, the family history is not illuminating.

On examination, a well developed, fairly well nourished young woman in acute distress was seen. The temperature was 99, pulse 68, regular and of good volume, respirations 16, blood pressure 104 systolic, 76 diastolic. The urine contained no red cells nor albumen, but showed 4 white blood cells per high power field (voided specimen). X-rays showed multiple renal calculi on the right. X-rays of the skull showed no abnormal bone deposits. Examination of the blood showed 16,300 white blood cells with 59 per cent polymorphonuclears, and a hemoglobin of 13.5 Gm. The serum calcium was 13.6 mg. per 100 cc., total inorganic acid soluble phosphorus 3.3 mg. per 100 cc., cholesterol 170 mg. per 100 cc., serum proteins 6.6 per cent. The serum alkaline phosphatase was 10.2 Bodansky units; the serum acid phosphatase, 2.4 Bodansky units.

A surgical consultation was held and an operation performed two days after admission.

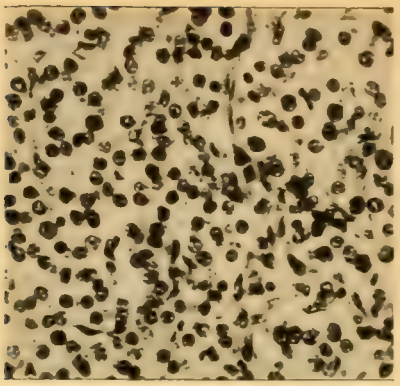
Discussion

DR. ARTHUR GROLLMAN: This patient was obviously suffering from severe and recurrent renal lithiasis with its common concomitant, infection of the urinary tract. Kidney stones are now believed to be due in most instances to (1) a combination of dietary deficiency and infection of the urinary tract, (2) hyperparathyroidism, or (3) certain metabolic disturbances in which excretion of abnormal amounts of cystine or xanthine, for example, or of an abnormal amount of calcium salts leads to their deposition in the urinary tract. In every case of renal stones it is imperative that one attempt to establish the factors involved in their formation, for only in this way can a rational and effective plan of therapy be instituted. It is also necessary to establish by analysis the chemical composition of the stone, for only then can one determine the kind of diet which should be ingested and the urinary reaction which should be maintained in order to avoid recurrence of stone formation. Unfortunately, the accurate analysis of kidney stones is a complex procedure. The available simpler tests are deceptive, since they are only qualitative, and most stones are mixtures of several chemical constituents. In retrospect, I believe that it is necessary to conclude that the patient under consideration did not have a xanthine stone as reported. The alkaline ash diet upon which she was placed, although proper for one afflicted with xanthine stone, would aggravate the condition from which the patient, as we shall see, must have been suffering, and led to alkalosis with tetany. The use of prohydron (a proprietary drug containing ammonium phosphate in addition to a mixture of several urinary antiseptics) is also open to criticism, since the added phosphate would augment the excessive amount of phosphate already present in the urine and favor the deposition of calcium phosphate stones.

In every patient suffering from renal lithiasis an attempt should be made to establish or exclude the presence of hyperparathyroidism. In certain areas (New England) as many as 10 per cent of all patients with renal lithiasis have been reported to be suffering from hyperparathyroidism. In this region of the country such a high incidence is not found, and it is my impression that probably less than 1 per cent of all cases of renal lithiasis encountered in the Carolinas are attributable to hyperparathyroidism. One can explain this discrepancy by assuming that the very high incidence of renal stones seen here is for the most part a result of nutritional deficiencies.

That the patient under consideration was suffering from hyperparathyroidism is suggested by the biochemical data given in the clinical summary. The elevated blood serum calcium (the normal being 9.5 to 12 mg.), reduced inorganic phosphate (normal, 3.5 to 4.5 mg.), and elevated serum alkaline phosphatase (normal, 1.5 to 4 Bodansky units) are characteristic of hyperparathyroidism. However, these data are not necessarily pathognomonic, for we must interpret them in every case in relation to the protein content of the blood, the renal function, and the other clinical laboratory findings, particularly the roentgenograms. Thus it is possible to have a normal serum calcium level in hyperparathyroidism when the phosphate level is elevated as a result of renal insufficiency. Such was not the case in the patient under consideration. One may observe an elevated blood serum calcium level in certain disorders of bone (multiple myeloma, metastatic cancer of bone) or in Boeck's sarcoid, but these conditions obviously need not be considered in the present case. The conclusion would thus seem justified that we are dealing here with a patient suffering from recurrent renal lithiasis due to hyperparathyroidism, and it can be predicted that at operation either an adenoma (composed of chief cells) or hyperplasia of one or more glands (with proliferation of the "Wasserhelle" cells) would be found. Statistic probability would favor the former.

In conclusion, several useful aids in diagnosis may be mentioned which are omitted from consideration in the clinical summary. No mention is made of the flaccidity of the muscles, the hyperextensibility of the joints, and the hyporeflexia which one notes in patients suffering from hyperparathyroidism. Although no abnormality of the bones was noted in the roentgenograms, an x-ray of the teeth in these patients will usually reveal decalcification of the *dura lamina* as an early sign preceding the more striking multiple giant cell tumors and generalized osteoporo-



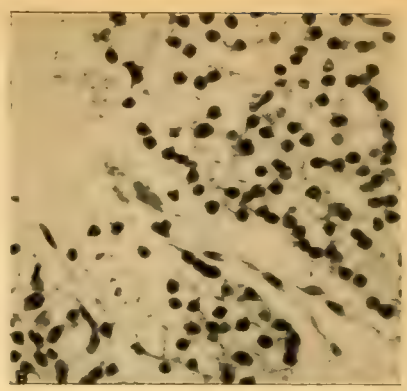


Fig. 1. (A) Adenoma of the parathyroid. The tumor is composed entirely of chief cells. (B) Hyperplasia of the parathyroid. The tissue is composed for the most part of water-clear cells.

sis characteristic of osteitis fibrosa cystica (von Recklinghausen's disease of bone), the classical disease of the skeleton seen in advanced hyperparathyroidism. It is desirable also in these patients to demonstrate the abnormal excretion of calcium from the body, preponderantly in the urine, when the patient is on a low calcium diet. However, even without these clinical and laboratory studies, the diagnosis of hyperparathyroidism appears inevitable on the basis of the data given in the clinical summary.

Dr. Grollman's Diagnosis

Hyperparathyroidism

Pathological Discussion

DR. ROBERT P. MOREHEAD: When the diagnosis of hyperparathyroidism is established clinically, surgery is indicated. However, intelligent surgery can be carried out only through close cooperation between surgeon and pathologist. A knowledge of the newer concept of parathyroid structure and familiarity with the behavior of the various cells under pathological conditions are imperative in the management of these cases.

Normal parathyroid glands are composed principally of chief cells. Water-clear cells are seen in small numbers, while small foci of pale and dark oxyphilic cells are present under various pathological conditions[1].

Hyperparathyroidism may result either from hyperplasia of the glands or from adenoma formation.

1. Castleman, B., and Mallory, T. B.: The Pathology of the Parathyroid Gland in Hyperparathyroidism. Am. J. Path. 11:1 72 (Jan. 1935.

Dr. H. H. Bradshaw operated on this patient and found a well encapsulated mass of tissue measuring 10 x 7 x 3 mm. in the region normally occupied by the right inferior parathyroid gland. An immediate frozen section was done and a chief cell adenoma demonstrated (fig. 1-A). A small amount of normal parathyroid tissue was seen at the periphery. The diagnosis of adenoma was based on the following facts: (1) the mass was composed of chief cells, (2) it was well encapsulated, and (3) normal parathyroid tissue was seen in an extracapsular position.

Since adenomas are usually single, it was decided not to explore further. That our judgment was correct in this instance has been established by a rapid and complete disappearance of the symptoms and signs of hyperparathyroidism. Had the tissue removed been composed of water-clear cells (fig. 1-B), we would have been forced to explore further, for parathyroid hyperplasia is a condition which involves diffusely all of the parathyroid glands. The type cell in parathyroid hyperplasia is the water-clear cell, while in adenoma it is the chief cell. These facts are of tremendous importance in the surgical management of patients suffering from hyperparathyroidism.

Pathological Diagnosis

Hyperparathyroidism due to adenoma of a parathyroid gland.

About 65% more young women than men die of tuberculosis between the ages of 15 and 25. From a practical standpoint the employer of large numbers of women needs an effective medical department if he would avoid a tuberculosis problem. Symposium on Tuberculosis in Industry, N.T.A. 1941.

MEDICOLEGAL ABSTRACT

J. F. Owen, M.D., LL.B.
Raleigh

Evidence: (1) The competency of a witness as an expert is properly addressed to the sound discretion of the trial judge. (2) The witness may refer to notes to refresh his memory.

This is an account of a criminal case in which a young Negro man was tried upon a charge of first degree murder. The evidence against the defendant in Superior Court, other than certain confessions, was circumstantial. The evidence tended to establish the identification of money belonging to the deceased which had been traced to the possession of the defendant, the presence of blood stains on the clothing the defendant was wearing on the night of the murder, and the facts that the defendant was the last person seen with the deceased, and that he was seen immediately after the murder running away from the scene. Circumstantial evidence also tended to show that on the day after the murder the defendant had in his possession a pistol which had previously belonged to the deceased.

In Superior Court the verdict of the jury was that the defendant was guilty of murder in the first degree, and the judgment of the court was that the convicted man should suffer death by asphyxiation. The defendant appealed to the Supreme Court, assigning several errors, two of which should be of interest to the medical profession.

The first error which has a medicolegal significance was with reference to a well known and eminently qualified physician who was tendered by the State, and found by the judge of the court below to be an expert in chemistry and toxicology. The purpose of using the expert testimony of this doctor was to show that an analysis made by him of certain stains on the coat and trousers worn by the defendant on the night of the murder showed the presence of human blood. The defendant did not object to the ruling of the court in holding the witness to be an expert in chemistry and toxicology, but entered an exception that the witness was not an expert hematologist. The Supreme Court found that the exception as to this expert witness could not be sustained, giving as its reason that the qualifying examination clearly showed the physician to be competent to testify as an expert in chemistry as to his analysis of the stains found on the accused's clothing. The Court further justified its action by the fact that no objection was made to the testimony of the doctor at the time of the trial, and no motion was made to strike out his testimony as being incompetent.

Another exception which was noted in this case was as follows: A special agent for the State Bureau of Investigation read a report for the purpose of refreshing his recollection as to the statements made by the accused to the agent. The report was dictated by the representative of the Bureau of Investigation from notes taken by him during a conversation with the defendant shortly after the murder occurred. The Court permitted the witness to use the report solely for the purpose of refreshing his memory.

The Supreme Court, with reference to this exception, stated that the judge at the trial in Superior Court was justified in allowing the testimony, which was based on certain notes used solely for the purpose of refreshing the witness' recollection. The Court further stated that a witness may refresh his memory from notes derived from the following sources: First, notes prepared by the witness himself; second, those prepared under the witness' supervision; and third, notes or memoranda made by another in his presence. This ruling, of course, is not limited to medicolegal cases, but applies to evidence in general. For this reason it was thought to be of interest to the medical profession, inasmuch as doctors are frequently called upon to give testimony when it is almost impossible for them to remember the details of the case at hand, especially where it involves minute information about examinations, treatment, operations, and other data concerning patients whom they have had under their care.

None of the exceptions set out in the record were sustained, and as a consequence the Supreme Court found no error, and the judgment of the court below was found to be correct. (Decision rendered Fall Term, 1943. North Carolina Supreme Court Reports, Vol. 223, Page 457).

BULLETIN BOARD

SECRETARY'S MESSAGE

The following resolution was sent to this office, with the request that a copy be mailed to the secretaries of all component county societies. Rather than do that, I am asking that it be published in the JOURNAL of our State Society.

ROSCOE D. MCMILLAN, M.D.

RESOLUTION

At a call meeting of the Davidson County Medical Society, held October 8, 1943, a resolution was passed in protest against the present set-up of the Obstetrical and Child Welfare Care as now administered. The objections to the present set-up were based on the following points:

(1) The complicated blanks that the doctors are required to fill out.

(2) The provisions made for additional pay for complications and abnormalities of pregnancy.

(3) Delay (6 weeks) in payment of the obstetrical bills.

(4) Fees not in keeping with the fees charged by the doctors for obstetrics.

It was also requested that the Secretary of the County Society write the Secretary of the State Society suggesting that a letter be sent, or a copy of our letter sent, to the Component Societies of the State Medical Society.

(Signed) J. R. TERRY, *Secretary*
Davidson County Medical
Society

News Notes From the State Board of Health

At the meeting of the North Carolina Public Health Association held in Raleigh in October, Dr. Milton J. Rosenau, the first dean of the North Carolina School of Public Health, said:

"It is not enough to control disease and, thereby, promote longevity. The thing that is going to end wars and bring peace and real happiness to this world is mental and moral character... We will never have a complete School of Public Health until mental health is represented."

Whereupon, Dr. Carl V. Reynolds, State Health Officer, announced that plans already are under way for the inclusion of a course dealing with mental health, and that consummation of this plan awaits only the selection of an acceptable psychiatrist to have supervision of it.

The North Carolina School of Public Health was started in 1936 on what Doctor Rosenau terms a "shoestring." It has now grown to the point where it is staffed by a dozen full-time professors and numerous aides and assistants. At present, the student body is composed of nearly one hundred men and women, including 37 who are training to become public health nurses, more than thirty who will become public health educators, a number of engineers and sanitarians, and one physician.

News Notes From the Bowman Gray School of Medicine of Wake Forest College

The Bowman Gray School of Medicine will graduate its first class on December 20. The program for the Commencement Exercises, December 19 and 20, is as follows:

Sunday, December 19

11:00 a.m.—Baccalaureate Sermon, Dr. Olin T. Binkley—First Baptist Church

4:00 p.m.—Tea for seniors, their relatives and friends, and the faculty, given by Dr. and Mrs. C. C. Carpenter.

7:30 p.m.—Special program of music—First Baptist Church

Monday, December 20

10:00 a.m.—Medical Clinic .....Amphitheatre

12:30 p.m.—Alumni Luncheon....Robert E. Lee Hotel

2:00 p.m.—Surgical Clinic .....Amphitheatre

8:00 p.m.—Graduation Exercises.....R. J. Reynolds Auditorium

Address by Hon. J. Melville Broughton

There are thirty-one candidates for the degree of Doctor of Medicine, and one for the degree of Master of Science.

* * * *

Dr. Tinsley R. Harrison, Professor of Medicine, attended the meeting of the Section Secretaries and Chairmen with the Council on Scientific Assembly of the American Medical Association in Chicago last month. He is Chairman of the Section on Experimental Medicine and Therapeutics. He also attended a meeting of the Executive Committee of the American Heart Association, of which he is chairman, in New York on December 8. En route he stopped at Baltimore to hold a clinic at the Johns Hopkins Medical School.

* * * *

Dr. George Harrell, Associate Professor of Preventive Medicine, and Dr. Thomas Brooks, Instructor in Parasitology, attended the meeting of American Society of Tropical Medicine in Cincinnati on November 16. Dr. Harrell gave a paper on "Trichinella Skin Tests in Tuberculous Patients" before the Society, and Dr. Brooks went to discuss the report of his research on the heart worm of dogs.

Dr. Wingate M. Johnson, Professor of Clinical Medicine, attended the Annual Conference of Secretaries and Editors of Constituent State Medical Associations at the American Medical Association headquarters in Chicago on November 19, and a meeting of the Trustees of the National Physicians' Committee on November 20 and 21. He presided over the annual editors' dinner, held on November 19.

Seventh District Medical Society

The Seventh District Medical Society met in Lincolnton for an afternoon session and a dinner meeting. The meeting was called to order by the Councilor, Dr. J. A. Elliott of Charlotte, and the following program was presented:

Program

"The Work of the Women's Field Army of the American Society for the Control of Cancer" —Mrs. George Marshall, Mount Airy, N. C., State Commander, Women's Field Army.

"Transfusions in Infancy" — Dr. J. H. Fitzgerald, Lincolnton, N. C.

"The Present Day Knowledge of Penicillin"—Dr. Elias Faison, Charlotte, N. C.

"Results Obtained by Present Methods of Treatment of War Injuries"—Joseph C. Wood, 1st Lt., Med. Corps, AUS, Camp Sutton, N. C.

Banquet 7:30 P. M.

Invocation—Rev. A. B. McClure, Lincolnton, N. C.

Address of Welcome—Postmaster Victor Fair, Lincolnton, N. C.

Response—Dr. J. Rush Shull, Charlotte, N. C.

Address—Dr. J. W. Vernon, Morganton, N. C.—President, Medical Society of the State of North Carolina.

Remarks—Dr. Roscoe McMillan, Red Springs, N. C., Secretary, Medical Society of the State of North Carolina.

Scientific Address—"Practical Points in Pediatric Practice"— Dr. Samuel F. Ravenel, Greensboro, N. C.

Officers elected for 1944 were Dr. A. M. Cornwell of Lincolnton, President; Dr. W. I. Hill of Albemarle, Vice President; and Dr. H. C. Thompson of Shelby, Secretary-Treasurer. Officers for 1943 were Dr. K. E. Neese, Monroe, President; Dr. A. M. Cornwell, Lincolnton, Vice President; and Dr. H. C. Thompson, Shelby, Secretary.

The next meeting will be held at Albemarle in the fall of 1944.

Forsyth County Medical Society

The Forsyth County Medical Society held a dinner meeting in Winston-Salem on November 9. Drs. H. H. Bradshaw and J. F. O'Neill of the Bowman Gray School of Medicine showed movies and gave a talk on "186 Lung Operations".

Pitt County Medical Society

At the monthly meeting of the Pitt County Medical Society held in Greenville on November 11, Dr. N. Thomas Ennett was elected president of the society for 1944.

Seaboard Medical Association

The forty-eighth annual meeting of the Seaboard Medical Association of Virginia and North Carolina was held at the Jefferson Hotel, Richmond, November 30, December 1 and 2, 1943. Normally the annual meetings are held alternately in the tidewater section of the two states, but because of war activities it was impossible to secure accommodations in tidewater Virginia this year. For that reason the Association met for the first time in its history in Richmond.

A.M.A. Scientific Exhibit

The Scientific Exhibit at the Chicago Session of the American Medical Association, June 12-16, 1944, will be held at the Palmer House. Exhibits will cover all phases of medicine and the medical sciences with particular emphasis on graduate medical instruction for the physician in general practice.

Application blanks for space in the Scientific Exhibit are now available and may be obtained by communicating with the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois.

Directory of Medical Specialists

Announcement is made that the Directory of Medical Specialists is now to be published by the A. N. Marquis Company of Chicago, publishers of "Who's Who in America". Previous editions have been published for the Advisory Board for Medical Specialties by the Columbia University Press of New York City.

It is planned not to issue the next edition before 1945, on account of the war, but the A. N. Marquis Company will publish a supplemental list of all those who have been certified by the American Boards since the last (1942) edition of the Directory, totaling about 3600. This is to be distributed at cost, and monthly or bimonthly bulletins listing successful candidates for certification at examinations during the additional interim before the next edition, are to be issued as a subscribers' service.

Dr. Paul Titus (Pittsburgh) of the American Board of Obstetrics and Gynecology will continue as the Directing Editor, and Dr. J. Stewart Rodman (Philadelphia) of the American Board of Surgery continues as Associate Editor. The Editorial Board will be composed, as before, of the Secretaries of the fifteen American Boards.

Communications should be addressed to the Directing Editor, Directory of Medical Specialists, 919 No. Michigan Avenue, Chicago 11, Illinois.

Executive Changes

Executive changes in The Upjohn Company which are to become effective the first of the year will bring Donald S. Gilmore to the presidency, a position occupied by Dr. L. N. Upjohn since 1930.

Dr. Upjohn will assume the chairmanship of the board of directors, maintaining his active connection and his general supervision of the company's affairs. The changes were made at a special meeting of the board of directors on November 15.

In addition to the change in the presidency of the concern, the board elevated three men long identified with the executive direction of its affairs to vice presidencies, effective immediately.

Dr. E. Gifford Upjohn, who has been with the company since 1931 and is now medical director, will retain his present duties as medical director in the post of vice president. Dr. Harold S. Adams, who joined the company in 1926 and has been general superintendent, is vice president and director of production.

The third man elevated to a vice presidency is C. V. Patterson, a general sales manager. Mr. Patterson, also placed on the board of directors, now assumes the office of director of sales.

At the same meeting the board named Emil H. Schellack, who with Mr. Patterson has been a general sales manager, the general sales manager of the company. Other officers of the company are John S. McColl, vice president and treasurer; Dr. F. W. Heyl, vice president and director of research; and J. B. Vanderberg, secretary.

AUXILIARY



TO ALL AUXILIARY MEMBERS

In time of war beware of tuberculosis, for war and tuberculosis go together. Everyone should know the signs and symptoms of this dreaded malady. In these days of intensive war effort, every man, woman, and child counts. We need all the health and vitality we can muster. Learn how to care for your own health and the health of your family. Your local tuberculosis association is ready and eager to help. You will find there literature, posters, information and advice. It is yours for the asking. Your support of the annual Christmas Seal Sale has made these services possible. Buy these Seals and make them your weapons for health and victory, and to prevent a war time rise in tuberculosis. To protect your home and every home in America send in your contributions today.

Lida Taylor Pace,
President

* * * *

THE STEVENS BED

The Stevens Bed at the Western North Carolina Sanatorium, Black Mountain, is occupied at this time by a nurse. She is making very favorable progress and expresses deep appreciation for the help she has received from the State Auxiliary. Please send greetings to our patient at the holiday seasons.

* * * *

THE McCAIN BED

The Auxiliary to the Medical Society of the State of North Carolina was organized April 18, 1923, in Asheville. In the beginning it was primarily a social organization, planning for the entertainment of doctors' wives and daughters at the annual meetings and at district meetings. We soon found this plan inadequate for an organized group of intelligent women, and thus we sought more constructive activity.

At the annual meeting held at Pinehurst in 1928, Mrs. R. S. McGeachy of Kinston, Chairman of the Committee of Past Presidents, gave a report suggesting that as a definite project for the year the Auxiliary maintain a bed at the North Carolina Sanatorium.

In 1935 this, our first and major project, was made a permanent one. At the suggestion of Mrs. McGeachy we named this the McCain Bed in honor of Dr. P. P. McCain, Superintendent of the Sanatorium, and Sadie McBrayer McCain, his wife, and the organizing president of our Auxiliary. At the same time, an appropriate marker was placed in front of the main building at the Sanatorium telling of the McCain Bed; and an endowment fund was started. It was agreed that all funds contributed to the organization, and not designated otherwise, would be placed here.

This endowment fund had its real beginning when the State President, Mrs. J. B. Sidbury of Wilmington, gave her expense funds for the year as the first donation. Other officers followed with contributions of their expense accounts. Since that time, many gifts have been made, and many of our wide awake county and district auxiliaries have sponsored some activity on behalf of the McCain Bed Endowment Fund, thus playing an important part in its growth.

In addition to this Fund as a source of upkeep for "Our Bed," one half of the annual membership dues and a large percentage of each *Hygeia* subscription obtained by the Auxiliary also go toward its maintenance. From the beginning it was generally understood that doctors or families of doctors would be given first consideration in designating an occupant for our bed; second preference is given to nurses. If neither a doctor nor a nurse needs our aid, then the bed may be occupied by anyone approved by the Superintendent of the Sanatorium and the Chairman of the Bed, who is Second Vice President of the Auxiliary.

Since the acceptance of the McCain Bed as our major project fourteen doctors, nurses, children and other deserving individuals have been our guests; and we have been allowed the privilege of sharing in their fight to regain their health. The sincere gratitude of some of these guests has been expressed through contributions to the McCain Bed Fund.

Other objectives of the Auxiliary in regard to this project include visiting our guest when possible and sending cards or other remembrances throughout the year.

The real challenge to every doctor's wife, and to every person in the state interested in medicine, is the attainment of a $10,000 endowment fund in order that our bed may be assured.

No project could be more worth while than this of providing adequate medical and hospital care for those who are so deserving of the *best*, and the Auxiliary solicits your whole hearted cooperation.

MRS. CHARLES GAY,
Chairman of the McCain Bed

* * * *

HYGEIA

At the fall board meeting of the Auxiliary it was decided to set a quota for each society in the state for subscriptions to *Hygeia*.

More than ever before we realize that the public must be given authentic medical information. With so many problems of war and post war periods staring us in the face, we cannot afford to relax our efforts in the education of the public concerning health matters. At this time with so many of our doctors and nurses away, it is imperative that we reach the public in this way, and we as doctors' wives will be called upon to help with this important matter.

Hygeia is the only health magazine published by the American Medical Association for the public. It contains most helpful information each month in a language the general public can understand.

This year we want to build up our subscription list from the general public, with a good distribution of *Hygeia* throughout the state. Of course, we want our auxiliary members and their husbands to subscribe also, for we cannot expect the public to subscribe when we have not done so ourselves.

Consider two important questions when you are asked to help your society meet its *Hygeia* quota for the year. First, is this too much for me to do on the home front when a North Carolina doctor is meeting stark realities each day on the battle front? Second, by selling one subscription to *Hygeia* I can help to keep a tuberculous patient in a Sanatorium for two days. Can I let him down?

With these thoughts in mind I am sure that you will work diligently to meet your quota. At any time I will be most happy to help you and at all times I will appreciate your efforts.

MRS. JOHN REECE,
Hygeia Chairman
212 Cascade Ave.,
Winston-Salem, N. C.

In Memoriam

HERBERT TAYLOR AYDELETTE, M.D.

Dr. Herbert Taylor Aydelette died on the nineteenth day of July, 1943, at the age of 75 years at the home of his son, H. T. Aydelette, Jr., in Norfolk, Virginia. A native of Elizabeth City, North Carolina, he had practiced his profession at Greensboro for twenty-five years, until he was forced by the state of his health to retire from active practice two years prior to his death. A graduate of the University of Virginia and of the School of Medicine of Wake Forest College, he resided in Greensboro at 1805 Randolph Avenue.

WHEREAS, the occasion is now at hand for us, who were his friends and fellows and professional associates, to pay honored respect to this venerated brother of the profession;

NOW, THEREFORE, BE IT RESOLVED: That we the assembled members of the Guilford County Medical Society of Guilford County, North Carolina, do hereby go on record in paying a memorial tribute to the revered memory of Herbert Taylor Aydelette and in tendering our lasting respect to his life and great works, which by his study and devotion to his professional duty he dedicated to the relief of suffering humanity.

JAMES THOMAS TAYLOR, M.D.

Dr. James Thomas Taylor died on the twenty-seventh day of September, 1943, at the age of 59 years at his home, 206 Meadowbrook Terrace, Irving Park, Greensboro. He was born at Raleigh, North Carolina, and was graduated from Buie's Creek Academy and from the University of Maryland, afterward interning at this University; and after his internship he resided at Madison, North Carolina, until 1926, when he became associated with J. W. Tankersley, M.D., in Greensboro, where he engaged in active practice until his retirement six months prior to his death. He was a thirty-second degree Mason and a past president of the Guilford County Medical Society.

WHEREAS, the occasion is now at hand for us, who were his friends and fellows and professional associates, to pay honored respect to this venerated brother of the profession;

NOW, THEREFORE, BE IT RESOLVED: That we the assembled members of the Guilford County Medical Society of Guilford County, North Carolina, do hereby go on record in paying a memorial tribute to the revered memory of James Thomas Taylor and in tendering our lasting respect to his life and great works, which by his study and devotion to his professional duty he dedicated to the relief of suffering humanity.

BOOK REVIEWS

Internal Medicine in General Practice. By Robert Pratt McCombs, Lieutenant, Medical Corps, United States Naval Reserve; Recently Instructor in Internal Medicine for the Statewide Postgraduate Program of the Tennessee State Medical Association. On leave of absence from the staffs of the Pennsylvania Hospital, the Abington Memorial Hospital and the Jefferson Medical College, Philadelphia. 694 pages with 114 illustrations. Price, $7.00. Philadelphia and London: W. B. Saunders Company, 1943.

This is a concise volume outlining the practical clinical aspects of internal medicine. It is based on the author's experience as an instructor in the Statewide Postgraduate Course in Internal Medicine which was given under the direction of the Tennessee State Medical Association. Dr. McCombs has succeeded admirably in condensing the fundamental principles of internal medicine into a comparatively small volume. Despite its conciseness, the book is complete in its coverage of everything of practical importance. It is up-to-date in every respect and can be heartily recommended to those in the armed forces as well as to the busy practitioner who, in the present times, is too much pressed for time to indulge in the intellectual satisfaction of a more extensive treatment of the subject.

Management of the Cocoanut Grove Burns at the Massachusetts General Hospital. By the following members of the Staff: Joseph C. Aub, M.D.; Henry K. Beecher, M.D.; Bradford Cannon, M.D.; Stanley Cobb, M.D.; Oliver Cope, M.D.; N. W. Faxon, M.D.; Champ Lyons, M.D.; Tracy Mallory, M.D.; Richard Schatzki, M.D.; and their staff associates. 171 pages. Price, $4.00. Philadelphia: J. B. Lippincott Company, 1943.

This monograph, which was previously published in the **Annals of Surgery**, is undoubtedly one of the most important civilian contributions to medical practice to be made during the war. The handling of a large number of severely burned patients by a top-flight civilian hospital utilizing all modern facilities and services produced astounding results. The problems of organization and administration were considerable, and the lessons learned from the standpoint of the hospital administrator, social service worker, physiotherapist, and those interested in rehabilitation are covered in separate chapters. The illustrations are superb and include seven complete pages in color. Many new techniques were utilized, and these are covered in a detailed fashion. The patients were very carefully studied from the metabolic, roentgenologic, and pathologic points of view and the results of these findings are given. This volume can be very highly recommended for study by the general practitioner for recent advances in the care of severely burned patients, and is a "must" for industrial physicians or those in charge of hospital services where the victims of a similar catastrophe may have to be treated. The lesson of the inestimable value of a previously worked out plan and the instruction of all phases of a hospital organization in their duties will be obvious.

Diagnosis of Uterine Cancer by the Vaginal Smear. By George N. Papanicolaou, Department of Anatomy, Cornell University Medical College; and Herbert F. Traut, Department of Obstetrics and Gynecology, Cornell University Medical College and the New York Hospital. 47 pages with innumerable fine color plates. Price, $5.00. New York: The Commonwealth Fund, 1943.

This volume represents the collected works of Drs. Papanicolaou and Traut on the diagnosis of cancer of the uterus by the use of their special technique for the study of vaginal smears. The technique is described in detail. The interpretation of the results of this method of vaginal smears is distinctly helped by the numerous color plates which illustrate all of the abnormalities noted by these and other investigators in this method of study.

This painstaking work offers a new diagnostic method to the gynecologist, and should be part of the gynecological specialist's library. It offers little to the general practitioner because of the complex nature of the methods, and the highly specialized training necessary for the interpretation of results. Fortunately, the method is sufficiently complex that it is not likely to be abused by inexperienced persons.

This volume is a fine contribution to the gynecological literature.

Life Is Too Short. An Autobiography. By C. Kay-Scott (Frederick Creighton Wellman). 348 pages. Price, $3.50. Philadelphia: J. B. Lippincott Co., 1943.

Dr. Frederick Creighton Wellman, whose autobiography forms the subject of the present book, is a most remarkable character. After receiving his medical degree he spent nine years as a missionary in Central Africa, devoting his spare time to hunting and scientific study of the native flora, fauna and ethnography of the Bantu tribes. He then left Africa for Europe, where his work in entomology led to his appointment as Professor of Tropical Medicine and ultimately as dean of the School of Tropical Medicine at Tulane University. He suddenly left this position to elope with a paramour and go to Brazil to start life anew, even adopting a new name, Cyril Kay-Scott, which he used thereafter. In Brazil he was made manager of a large commercial house, became a rancher, was reduced to the economic status of a peon, and finally attained success as a mining engineer. Returning to America and Europe, he made a new career in painting and writing, establishing the School of Fine Arts of Denver University and later becoming Dean.

As may be seen from this brief resume', the author had a variegated career possible only to a most extraordinary person and one endowed with a superabundance of energy and the will-to-live. This autobiography, in the reviewer's opinion, is by far the richest of any which he has encountered in recent literature. Not only is it replete with interesting accounts of the author's vicissitudes, including his five marriages (four official), but it is interlarded with inimitable comments on innumerable subjects ranging from marriage and love to missionaries, Freudianism, and art. The book is written in a vigorous and literary style and can be recommended as an enjoyable account of the adventures and philosophy of an unusual man endowed with a real zest for life.

The Principles and Practice of Industrial Medicine. Edited by Fred Wampler, M.D., M.P.H., Professor of Preventive and Industrial Medicine and Administrator, Out-Patient Clinic, Medical College of Virgina; Health Consultant, Southern Biscuit Company, Richmond, Virginia. 593 pages, illustrated. Price, $6.00. Baltimore: The Williams and Wilkins Company, 1943.

This book consists of thirty-three separate articles contributed by thirty-two authors. The volume follows the newer trend in discussing toxicity of compounds from the standpoint of the prevention of disease in industry rather than the medicolegal aspects of the medical examiner's or coroner's office. Emphasis is placed throughout on the preventive aspects of an industrial program. Many of the articles are written from the clinical viewpoint. This undoubtedly is the best volume recently published for use by the physician who is employed whole or part time by an industrial concern.

Essentials of Syphilology. By R. H. Kampmeier, A.B., M.D., Associate Professor of Medicine, Vanderbilt University School of Medicine; in Charge of the Syphilis Clinic and Visiting Physician to Vanderbilt University Hospital; with chapters by Alvin E. Keller, M.D. and J. Cyril Peterson, M.D. 518 pages. Price, $5.00. Philadelphia: J. B. Lippincott Company, 1943.

This volume adequately fills a long felt need for a short and inexpensive treatise on syphilis for students and general practitioners. The author has summarized the experience of the Vanderbilt University Hospital Syphilis Clinic. The book is very well organized according to the case presentation method. Short case histories are cited as examples of various types of lesions. The photographic illustrations are uniformly excellent and well reproduced. The size of the volume has been kept small and handy. The author has wisely included chapters on epidemiologic factors and prevention of syphilis. Schedules of treatment for various forms of syphilis are conveniently tabulated for the use of the busy practitioner.

Child Development. By Marian E. Breckenridge, M. S., Nutritionist, Merrill-Palmer School and E. Lee Vincent, Ph.D., Psychologist, Merrill-Palmer School. 592 pages with 37 illustrations. Price, $3.25. Philadelphia and London: W. B. Saunders Company, 1943.

This new book is written as a text for courses on child development. Although we have had many books and monographs on child development which have stated the various authors' viewpoints, there has been a need for a general text to serve in classroom teaching. This need is well filled by this text. The importance of the careful study of normal growth and development in children is being appreciated more and more. Teachers, social workers, clinicians, and parents can all do a better job in their individual fields of interest if they have a clear concept of the normal. General principles of development and also the specific patterns of physical, social, language and personality development are discussed in this book. The authors present the opinions of various groups on these problems, so that class discussion may be stimulated. In summary, this book can be recommended highly for both classroom use and for individual reference.

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